

Tentative list of Pleistocene Vertebrates from Vallecito
Creek (1) and Fish Creek (2) from Southern California

by

Theodore Downs and John A. White

October 1964

Fish:

Isolated elements

Amphibia:

Isolated elements

Reptiles:

^{id}
^ Testudinae: giant and small-sized (being studied by
B. H. Brattstrom)

Lacertilia: (being studied by Richard Etheridge) 1 + ? 2

Sceloporus sp. (?magister)

Sceloporus sp.

Uta sp. (?stansburiana)

Xantusia sp. (?vigilis)

Cnemidophorus sp. (?tigris)

Serpentes: (being studied by B. H. Brattstrom) 1 + ? 2

Numerous fragments

One complete skeleton

Birds: (From Howard 1963)

Podicipediformes -- Grebes |

Podiceps caspicus

†Podiceps sp.

Anseriformes -- Ducks and Geese |

†Anser sp.

†Branta adornata downsi

Anas acuta ?

Anas clypeata

†Bucephala fossilis

Melanitta perspicillata ?

†Oxyura bessoni

Falconiformes — Diurnal Birds of Prey |

+ Teratornis incredibilis

Hawk sp.

Aquila chrysaetos?

+ Neophrontops vallecitoensis

Galliformes — Fowl |

Lophortyx gambeli

+ Agriocharis anza

Gruiformes — Rails and Cranes |

Rallus limicola?

Fulica americana?

+ Fulica hesternus

Charadriiformes — Shorebirds |

Charadrius vociferus

Strigiformes — Owls |

+ Asio sp.

Strigidae sp.

Piciformes — Woodpeckers |

Picinae sp.

Passeriformes — Perching Birds

Corvidae sp. |

Fringillidae sp. |

Passeriformes sps. (4 or more sps.) | + 2

Mammals:

Vespertilionidae — Plain nose bat |

? Myotis sp.

Soricidae — Shrews

Sorex sp. | + 2

+ Notiosorex near N. jacksoni | + ? 2

Talpidae — Moles

+ ? Hesperoscalopus sp. |

Edentata:

†Paramylodon sp. — Giant Ground Sloth |

Megalonix sp. — Ground Sloth |

Lagomorpha:

†Hypolagus cf. H. regalis 2

†Hypolagus sp. 2 (resembling the small species with anterior resutrant on P_3 described by Cowney from the Ill Ranch, Arizona)

†Hypolagus sp. (resembling the small species from the Borchers in Kansas described by Hibbard) |

Sylvilagus near S. floridanus — Cottontail rabbit |

Sylvilagus sp. a species smaller than S. floridanus. |

Lepus sp. — Jackrabbit |

Rodentia:

Sciuridae sp.

†Geomys garbanii — Great Plains Pocket Gopher |

Thomomys sp. — Western Pocket Gopher |

Perognathus sp. (seemingly of the P. hispidus group) | + 2

†Prodipodomys sp. — Extinct Kangaroo Rat | + 2

†? Etadonomys sp. — Extinct Kangaroo Rat | + 2

Dipodomys sp. — Kangaroo Rat | + 2

Peromyscus sp. — White-footed Mouse | + 2

Onychomys sp. — Grasshopper Mouse |

? Baiomys sp. — Pygmy Mouse |

Reithrodontomys sp. — Harvest Mouse | + 2

†Sigmodon near S. medius from the Benson, Arizona 2

Sigmodon sp. — a Cotton Rat of intermediate size. 2 + 1

Sigmodon sp. — Cotton Rat the size of S. hispidus |

Neotoma sp. — Woodrat seemingly related to N. albigula,
N. lepida, or N. mexicana. |

Neotoma sp. — A species distinct from the above. | + 2

? Nelsonia sp. — Pygmy Woodrat-like cricetid. 2

Oriscatinae: 3 or 4 species. 1+2

?Microtus sp. -- Meadow Vole 1

†Porcupine -- a large species closely related to Coendou the prehensile-tailed porcupine, but much too large in size. Possibly a new genus. 1

Carnivora:

Felidae:

Large cat 1

Small cat 1

Canidae:

fox 1

dog, small species. 1

Wolf (large) 1

Ursidae:

†Tremarctos n. sp.?

Λ -- Spectacled Bear 2

Mustelidae:

cf. Taxidea -- Badger 1

Spilogale sp. -- Spotted Skunk 1

Proboscidea:

†cf. Stegomastodon sp. -- Mastodon 1

†Equidae sp. 2

†Equus (Plesippus) -- Large Horse 1+2

†Equus cf. bautistensis -- small Horse 1

†? Hippidion or? Pliochiopus -- Genus and species to be determined? 1

Tayassuidae:

† cf. Platygonus sp. -- Large Peccary 1

Camelidae:

†cf. Titanotylopus sp. -- gigantic, Long-limbed camel. 1

† Tanupolama -- small, llama-like Camel 1

Antilocapridae:

† Tetrameryx -- Four-Tined Antelope 1

† Breameryx 1

Cervidae: Deer

Large species 1

Small species 1

RENEWAL OF LOAN

asked for renewal
to 7.1.66

Date... 6/8/65

The loan No. 30225 dated... 12/20/62... from the Department
of Vertebrate Paleontology... of The American Museum of Natural
History consisting of... fulcrum minor from Silver
Lake, Ore., 10 humeri, 6 tarsi,
4 coracoids, 1 ulna, 4 scapulae.
expires... 19...

It is the custom of the Museum to check up periodically on its loans. Therefore, will
you please indicate on the return post card whether you wish to renew this loan, and for
how long a period, or if you intend to return the material to the Museum in the near future.

L. E. Pintner—Manager, Office Services

TH



Dr. Hildegard Howard
Los Angeles County
980 Exposition Museum
Los Angeles 7,
California

4 new Pliocene fossil bird localities found

1 at Corona del Mar, 3 in San Diego

Brings total of Pliocene localities here to 14

Brings total Pliocene species to ~~16~~¹⁷ (~~seven~~^{eight} added)

Miocene record

8 localities (6 marine, 2 land)

17 species (14 marine, 3 land)

Pleistocene record

19 localities (9 marine, 10 land)

160 species (38 from marine, others from land)
(32 marine species)

CORONA del MAR

9 identifiable bones, 2 species

Mancalla and a new species of shearwater

Mancalla referred to M. californiensis of L.A.

SAN DIEGO

180 identifiable bones Miller and Museum combined

9 species

Mancalla diegensis (two-thirds)

extinct shearwater

extinct cormorant

Miosula recentior (long legs and short wings of Miosula
of the Miocene of Lompoc)

Colymbus parvus (known from Pliocene before and Pleisto.)

Gavia concinna described from Monterey

Possibly a wader

Murrelet (Brachyramphus)

gulls sp.

Comparison of marine avifaunas
of different ages in So. Calif.

Family	Miocene		Pliocene		Pleistocene		Recent	(Museum)
	sp.	bones	sp.	bones	sp.	bones	sp.	shells (bones) sp. indiv.
Gaviidae	-	-	1	10	2	8	3	357
Colymbidae	-	-	2	19	3	10	3	50
Diomedaeidae	1	1	-	-	2?	18	2	74
Procellariidae	3	14	2	17	3	16	2	15
Pelecanidae	-	-	-	-	-	-	1	205
Sulidae	5	9	1	3	1	5	-	-
Phalacrocor.	1	1	2	6	2	6	3	428
Anatidae	1	1	2	2	12	86	8	188
Rallidae	1?	1?	-	-	1	3	1	8
Scolopacidae	1	1	1?	1?	1(9)	1	3	4
Stercorariidae	-	-	-	-	1	1	-	-
Laridae	-	-	-	-	1 (3)	2	2?	145
Alcidae	1	1	1	7	3	5	4	131
	14	29	12	65	32 (12)	151	32	1605
Marecaillidae			1	140				
			14	205				

Grebes and loons -- Colymboides between loons and grebes in Eo Europe
true grebes and loons in Oligo Amer. Wyo. Ore.

Pelicans -- ancestry in Europe back to Eocene, doesn't seem to
appear in America until Pliocene (Idaho)

Albatross known from Miocene of Florida too

Procellariidae -- first true one Oligocene of France

Sulidae -- go back to Oligocene in Europe (Miocene here, Maryland, N.J.)

Cormorants -- Oligo Europe & Amer. (Colo. and Oregon)

Anatidae -- back to Cretaceous of Europe (Gallornis between duck & swan)
Found in Eocene of Utah.

Laridae -- Eocene and Oligocene Scolopacids may be gulls (1 in N.J.)
1 questionable in Oligo from Oregon, otherwise all Pleisto.
here and in Europe. Best represented in Oregon in Pleisto.

No fossil record of Stercorariidae prior to Pleistocene

Alcidae -- Eocene America (Utah and Oregon)

Rallidae -- Eocene of America (coot in Wyo. among others)

Bldg. Unit No. 12174-H
May 3, 1948

M: 5211 ~~Sta.~~ 316, or 317

Dry Rot repairs \$2000 - city



	greatest breadth cranium	Ht from condyles mid point supraorbital	Basal ^{temporal} length to mid point of cranium	Length behind premaxilla	mean basal length
Arizona specimen	42.7	24.6	30.4	32.0	19.8 x 10.5
La Brea skull					
Nephelotops americanus					
D 8229	38.0	19.0	27.4		
F 3738	36.8	18.8	30.4		
F 2962	39.7	19.2	30.3		15.3 x 9.3
E 643	39.0	—	30.6		
D 5752	39.7	19.8	30.7	30.6	
F 4501	36.2	19.4	30.1	29.6	14.7 x 8.7
F 3734	38.8	19.0	30.5	—	18.4 x 9.7

The Arizona skull has more prominent ^{central} bulge of supraoccipital

cf. Ariz. skull & Nephelotops americanus for

Dr. Moore

The earliest records of any of the present-day ordinal divisions of birds are cited from fossil deposits of Late Mesozoic (Cretaceous) age in Europe. The orders presumably represented are Pelecaniformes, Phoenicopteriformes and Anseriformes. But each of the four species assigned to these orders is known from very scant material (1 - 3 bones). Much better represented are two species assigned to an extinct order of divers. And in North America, the more ^{abundant} Cretaceous avifauna is entirely allocated to ^{three} extinct orders. In studying fossils of such great age, it is practically impossible to evaluate evolutionary status without ^{observing} ~~xxxxx~~ all critical diagnostic skeletal parts. The toothed jaws of Hesperornis and the biconcave vertebrae of Ichthyornis from the Kansas Cretaceous are obviously primitive characters and have served as a basis for establishing distinct orders for these forms. But the fragmentary remains from the European Cretaceous that have been assigned to present-day orders provide no such clues to evolutionary status. Therefore, apparent similarities to bones of birds of living orders have provided the only basis for classification. Admittedly this is scant evidence on which to record ^{although} the occurrence of these orders. It is possible (even probable) that these orders had their beginnings in the Mesozoic Era, ~~but~~ these fragments of bones do not constitute unquestionable evidence to this effect.

The Cretaceous anseriform record is particularly open to question. It is based on only two bones ^(a proximal end of femur and a small fragment of humerus) from the lowermost Cretaceous of France, described under the species name Gallornis straeleni Lambrecht (1931). The humerus would be considered unidentifiable were it not associated with the femur. The entire basis for assuming that the Anseriformes was already recognizable as an order in the Cretaceous period rests, therefore, on one small fragment of femur, ~~xxxxxx~~

this single bone is not sufficient for definite ordinal determination.
Even in birds of the early Tertiary, I have found that different elements may suggest different relationships, and only by weighing the combined evidence of several elements can true relationship be judged. The allocation of Gallornis ostraelensis to the Anseriformes is particularly open to question. ~~xxxxxxx~~ The type femur of this species is described, and illustrated, as having the trochanter raised above the proximal facet, whereas in the typical anseriform femur the trochanter is very low. It seems unwise to disregard this character in an assignment which would -- if correct -- establish ~~the~~ not only the earliest anseriform record, but the only record of the Order in the Mesozoic Era.

In my judgment, therefore, the earliest established records of the are those of the Anseriformes ~~xxxxxxx~~ Upper Eocene, ~~xxxxxxx~~ France ~~xxxxxxx~~ in the United States. Both are assigned to distinct subfamilies by their respective authors.

The ~~xxxx~~ earliest unquestioned

The Order Anseriformes is unquestionably recognizable in the ^{upper} Eocene. and the following forms are described.

At least nine ^{present-day} ~~of the~~ orders and a number of "modern" families ~~are~~ recognizable in Eocene deposits. ~~Class~~ ~~is~~ and The Anseriformes appear in the Upper Eocene of both Europe & North America. ~~represented~~ ~~represented~~ by two distinct types, both of which ~~have~~ ~~however, been~~ allocated to the family Anatidae. They are represented by two distinct forms, which ~~have been assigned to~~ given subfamily designations. It is strongly suggested that ~~it is of course highly probable~~ that the family ~~was present~~ existed in the ~~ancient~~ Eocene.

The occurrence of these

in widely separated

~~is a~~ distinct type of *oratis* ~~ausenformis~~
parts of the world in the upper Eocene of France & the

suggest that ~~United States~~, The order ~~may well have~~ must

had its origin ~~in Mesozoic time~~ sometime earlier in the Tertiary

do not consider to consider the ~~record of fossils~~

~~as proof of this~~

~~either in the very early Tertiary or~~

But ~~whether this was in the late early Tertiary~~

or in the late Mesozoic, the ~~second~~ ^{fossil} has not

yet clearly divulged.

Romaniella & Eriena ^{each} have carinate surfaces
preserved - distinction is clear. See Uchida 1938
(descrip. of Eriena & comment on Romaniella)

This is

~~is~~

~~is~~

An interesting form showing certain similarities
to the *ausenformis*, but more closely related to the
flamigos, occurs in the Eocene of Patagonia. Certain
elements of this species if isolated might have been
~~are~~ considered *ausenformis*. The species of family
certainly suggests relationship of the flamigos &
ausenformis groups.

2262 - "lumber jd" coll'd over 25 yrs
959 - Santa Monica (ryke loc)
769 - Linton's stuff

Loye Mills
Material

✓ borrowed Aug. 18, 1946

✓ *Oidemia purpurillata*
1 humerus frag prox. (Corder 32 p. 117)

Haleco sp.

1 Tibia distal end - unrecorded

Geck. or.

✓ 1 humerus (no prox. end / Corder 32 p. 117)
✓ 1 distal end tibia (not recorded - 2262)

Phal. pen?

✓ 1 frag sh tarsus Corder 32 p. 117
✓ 1 dist. frag coracoid (not recorded)

Eagle (*Haliaeetus*) recorded
1 cora.

Species. $\frac{3}{2}$

✓ 1 sacrum (~~Corder 32 p. 117~~)

✓ 2. Carpi

✓ 1 femur (1 shaft?) (1 dist. frag.)

✓ 3 dist. humeri

✓ 1 max sh humerus

✓ 1 vert.

✓ 2 scapulae

✓ 1 cora.

✓ 1 comp. 1 dist. ulna (also 1 shaft (to the manus))

✓ 1 dist. frag. tibia

2 frag. of ?

✓ 1 ulna
✓ 1 carpus
✓ 1 humerus
✓ 1 coracoid

San Pedro material at UCLA (T. S. Korman
2262) (not)
Chondyles 958

Scurus
1 complete (fig 45 Conder vol 32 p 118) 2262
~~1 minus prox. end (see 959 (unrecorded?)) (called by~~
~~Clark)~~
1 shaft two ends (2262)

Taurus
1 complete (2262) prob'ly one mentioned p 118
or called by student on class trip
1 distal end (2262)
~~and~~

Tibiotarsus
1 distal end (2262)
1 prox " (very worn) 2262 (called by J.C. Clark)

✓ Diomedea
1 distal end tarsus 19.7

Lophortyx
1 humerus (reported Conder 32 p 118)
1 prox femur
1 prox tibia

Puffinus griseus
1 complete carpus (ref Conder 32 p 118)
57.3 mm length

✓ Murrelet?
1 comp humerus unrecorded

Larus glaucescens
1 nearly comp. tarsus

"Kitchen Middens" San Nicolas C. B. Linton
 Tibia chondyles
 1 nearly complete (in 2 pieces)
 1 distal $\frac{3}{4}$
 1 prox $\frac{1}{4}$ (minus head)
 1 prox $\frac{1}{2}$ (good cranial cut)
 1 nearly complete

Femur
 2 complete

Sta Monica 959

chondyles

1 Femur (no prox.)
 1 Coracoid
 2 tarsi (1 dist 1 prox.)

Quaillet

1 ulna

distal $\frac{3}{4}$ = *P. penic.* on basis of prominent middle
 trochlea (short ~~prox~~ distally) with depression above)
 prox $\frac{1}{2}$ = *P. auritus* on basis of lack of depression bet,
 bases of internal coxyla + ligotarsus

San Diego material borrowed 8/18/46
 2220

1 distal end humerus manacilla
 2 " " humeri species? (one = *Puffinus* sp.)
 1 shaft tarsus (ankle of same kind) rt.
 1 dist end " " " left

1 shaft tarsus (coronant?)
 1 radius (coronant?)
 1 prox end carpus (sp?)
 1 dist end tarsus (sp?)
 1 sh femur (*Ptilopus*)

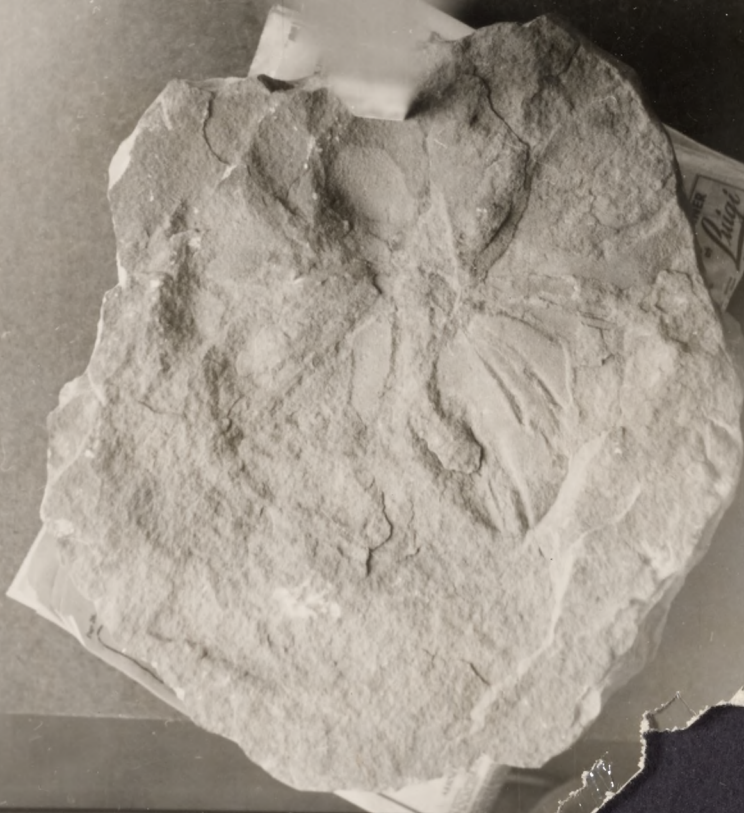
Duck bones San Pedro

	Carpus length	Depth MI	Triangular area	Scapula length	Humerus length	Humerus prox br	dist br	Ulna length		Cara br above face	br below face	depth below face	Tibia br dist	Tibia length
Miller 2262	57.0	13.7		51.2		17.8		81.1		9.9	6.3			
" "	60.9	13.8						50.3						
" "	—	11.0												
U.C. Palo 29303	37.8	9.3		21088 39.8	59.8	13.5	9.4	21094 72.5		6.2	4.3	3.6	29302 7.0	
					21096		9.1						29306 9.9	81.0

The 1956 third find of an Archaeopteryx specimen is

Das 1956 gefundene dritte Archaeopteryx-Exemplar ist von allen
^{now recognize become} nunmehr bekannt gewordenen am wenigsten gut und vollständig ^{transmitted} überliefert.
^{origin} Infolge einer ^{subsequently} bereits vor der Einbettung sehr weit fortgeschrittenen
^{decomposition} Verwesung der ^{skeleton} Leiche, kam es nicht nur zur Loslösung ganzer Extremitäten,
sondern auch zu einer recht ^{noticeable} beachtlichen Verlagerung einzelner Skelettelemente.
Der Fossilrest wird daher als ein längere Zeit im Wasser treibender Kadaver
aufgefasst. Neben den natürlichen ^{destruction (ravages) and} Zerstörungsvorgängen trägt zu dem man-
^{in perfect} gelhaften ^{state of preservation} Erhaltungszustand auch die Tatsache bei, dass beim Trennen der
Liegend- und Hangendplatte die meisten Knochen der Länge nach aufgespalten
wurden und auch noch andere Beschädigungen eintraten. Aber gerade durch
den damit möglich gewordenen Einblick in das Knocheninnere konnten gewisse
^{new} neue Erkenntnisse gewonnen werden, welche unter anderem das Verhalten der
Gelenkflächen an den Wirbelkörpern, die Beschaffenheit der Sacralregion,
Verschmelzung der Metatarsalia zu einem Tarsometatarsus, sowie die Frage der
allenfallsigen Pneumatizität der Langknochen betreffen. Sämtliche bisherigen
Archaeornithen-Funde gehören ein und derselben Art an, für die allein der Name
Archaeopteryx lithographica H. v. Meyer gelten kann.

Top.



X about 2 1/2

From Coconut SD

L.F. Brady 5-3-51

COPALITE

Copalite - an oxygenated hydrocarbon resembling copal.

Copal - An oxygenated hydrocarbon; a fossil resin.

Pough (1939, p. 220), defines copal as a somewhat older resinous substance, which has not been preserved and petrified to the extent that true amber has.

Leg (1938, p. 355), defines copal as a fossil resin which is not a true amber.

Dana (18... p. 1003), states amber and similar fossil resins are of vegetable origin, altered by fossilization. This assumption is made due to their associations with coal, fossil wood, and insects. Besides the tree Pinus sp., there are other trees that give off resin.

Leg (1938, p. 357), states that amber as a mineralogical term is called Succinite by Prof. J. D. Dana, because it was derived from Pinites succinifer, a pine like tree. (P. 384) amber is from Pinus cambrifolia, P. Kleinii, and P. Reichiana.

(P. 384?) the Baltic amber deposits are secondary, occurring during the Oligocene. Some of the amber is found to contain marine fossils. If the amber is a primary deposit, this would mean that the amber originally formed in the ocean.

Berry (1914, p. 72), shows Pinus raritanensis occurring in Upper Cretaceous formations in South Carolina, New Jersey to Maryland, and North Carolina.

Knowlton (1898, pp. 165 and 166), indicates the following:

Pinus anthraciticus Dn. Kootanie: Anthracite, British Columbia.

U.S. G. S. Bull. 896 identifies this as Lower Cretaceous.

Pinus (Cyclopitus) Nordenskioldi Heer. Kootanie, same as above.

Pinus susquaensis Dn. Cretaceous: Susqua River, NW Territory.
and Kootanie.

Pinus sp., Font. Lower Cretaceous (USGS) Trinity Division,
Glenrose, Texas.

Cretaceous: Staten Island

CONCLUSIONS

Copal is found in association with amber in the Baltic deposits, which is believed to have formed during the Eocene.

Pierce (1957, p. 949), in his Annotated Bibliography on Insects, Kusnezov..... A study of the Lepidoptera of amber and copal. Amber deposition extends from Upper Cretaceous to Miocene.

the Annotated Bibliography does not mention whether copal is associated with the Upper Cretaceous deposits.

It seems logical to assume that copal is at least Eocene in

age. If it is assumed that copal is a product of Pinus and other vegetation, the age of the copal could be considered to be at least of Upper Cretaceous age.

BIBLIOGRAPHY

Berry, Edward Wilber, 1914, The Upper Cretaceous and Eocene Floras of South Carolina and Georgia, U. S. G. S. Prof. Paper 84.

Dana, J. D., 18... Textbook of Mineralogy.

Fay, Albert H., 1920, A Glossary of the Mining and Mineral Industry, Bull. 95, Dept. of the Interior., Bureau of Mines.

Knowlton, Frank Hall, 1898, A Catalogue of the Cretaceous and Tertiary Plants of North America, U.S.G.S.

Leg, Willy, 1938, The Story of Amber, Natural History, Vol. 41. pp. 351-357.

Pierce, Dwight W., 1957, Insects. Geol. Soc. America, Mem. 67, pp. 943-952.

Pough, F. H., 1939. Natural History, Vol. 47, p. 220.

Wilmarth, M. G., 1938, Lexicon of Geologic Names of the United States U.S.G.S. Bull. 896.

CALIFORNIA'S FOSSIL BIRDS

Kindly contributed by Dr. Hildegard Howard

Los Angeles County Museum, Exposition Park, Los Angeles

Quoted passages are from "Fossil Birds," by the same author, Los Angeles County Museum Science Series, No. 10, 1945.

"Within the United States, the California area is the richest in records of fossil birds. In this State nearly 200 species are known, from 36 different fossil localities. The localities date from the middle Tertiary (Miocene epoch) up through the Pleistocene or Ice Age. Considering the length of time which has elapsed since primitive birds first appeared on earth, the California record covers only a short period in Avian history."

MIOCENE

"The avifauna from the California Miocene includes 16 species, all extinct today." The localities in which birds of this age occur are as follows :—

Marine deposits :

Lompoc (Santa Barbara Co.)—Diatomaceous shale ; marine birds.

Calabasas (Los Angeles Co.)—Diatomaceous shale ; marine bird.

Lomita (Los Angeles Co.)—Diatomaceous shale ; marine birds.

San Pedro Breakwater (L. A. Co.)—" " ; " "

Sharktooth Hill (Kern Co.)—sandstone, marine birds (fragments).

Point Firmin (L. A. Co.)—Large pebble with footprint of wader.
Land deposits.

Barstow area (San Bernardino Co.)—Volcanic ash ; 2 hawk bones.

Vasquez Canyon (L. A. Co.)—Footbones of a hawk.

PLIOCENE

Sixteen species of birds (all extinct), are now known from the Pliocene of California. The localities are as follows :—

Moraga Valley (Contra Costa Co.)—Mudstone, footprints of goose.

Sweetwater Canyon (Monterey Co.)—Sand pit, one marine bird.

Pozo Creek (Kern Co.)—land deposit, land birds.

Oil well drill core (Kern Co.)—2318 feet deep, 1 bird bone.

Ricardo (Kern Co.)—Volcanic ash, one bird bone.

Santa Barbara ; Marine gravels, 2 marine birds.

3rd St. Tunnel, L. A., 1 bone of flightless marine bird.

Corona del Mar (Orange Co.)—Marine sands, marine birds.

San Diego—“ “

PLEISTOCENE

“Pleistocene avian representation in California is especially abundant. Approximately 160 species (of which only 25 are extinct) have been listed from 19 localities.” Localities are as follows : Land deposits :

Rancho La Brea (L. A. Co.)—Asphalt, thousands of bird bones.

Carpenteria (Santa Barbara Co.)—“ hundreds “

McKittrick (Kern Co.)—asphalt, “ “

La Habra (L. A. Co.)—Stream-laid gravels, 1 bird bone.
Workman and Alambra sts., L. A., storm drain excav., 2 bones.
Barstow area (Kern Co.)—Old lake bed, 2 water birds.
Niles Canyon, near Mission San Jose (Alameda Co.), 2 bones.
Samwel Cave (Shasta Co.)—clay and stalagmite, foothill birds.
Potter Creek Cave (Eldorado Co.)—Same as Samwel Cave.
Hawver Cave (Eldorado Co.) “

Murine deposits :

Rodeo (Contra Costa Co.)—1 bird bone.
Santa Monica (L. A. Co.)—sand, a few marine birds.
Playa del Rey (L. A. Co.)—sand, “
Sexton Canyon (Ventura Co.)—marine gravels, one bird.
San Pedro (L. A. Co.)—several sand deposits, many birds.
Lomita “ —sand pit, 1 bird bone.
Bixby Slough “ —sand, one bird bone.
Newport Bay Mesas (Orange Co.)—many birds.
Santa Rosa Island—a few ducks and geese.

DR. HOWARD R. HILL, Los Angeles County Museum

Eocene—Miocene—Cretaceous

Santa Ynez Canyon—Running north from Sunset Blvd., about one mile from the ocean.

New information ^{Helminths Theropod dinosaur Dromaeosauridae}
Gingerich 1973 - *Hesperomys* T. Eos, Nature 243: 70-73
Gingerich 1972 - additional *Helthyomys* ^{Matthew}
Condor 74: 471

Cracraft - 1972 *Telmatornis* to *Charadriiformes*
near *Burhinidae*
Auk 89: 36

Cracraft - 1971 - new sp. *Caenagnathus*
Lower Paleol. 45: 805

Cracraft - 1973 - *Phylloscopus* *Siedler* *Quercus*,
Bradshaw - 1963 - Wyo, *Cichas*, Proc. XII Int. Ornith

Condor p 23-30

Elzanowski - 1974 - *Gobipteryx*
Pal, Polonia no 30 pp 101-109

Ostrom ¹⁹⁷⁰ (2) 1972, 1973, 1974 - on *Archaeopteryx*

Scarlett - 1972 *Quercus* of *Pseudodromomys*, N. Z.
NE zone, *Geol.*, *Geophysics* 15: 269

Stans Olson ¹⁹⁷¹ *Eurostomidae* included in *Tyrannidae*
his 113: 507-516

S. Olson, 1971 (2) Classification of *Rallidae* old world origin
Lewis Wilds Bull 85 forest dwellers
Smith Cont. Zool 1/5/72

Olson 1972 - *Whoroceras* from *Florida*
Condor 74: 341

Olson 1974 - *Palaeopteryx* *Florida* is a mod. *bikham*
(a bit smaller than *Leontideus*)
Auk 91: 179-180

Cracraft & Rich 1972 - Old World *Cathartidae*
Condor 74: 272-283

H 1971 - Baja Calif.

Scarlett & Goldwyn for Moore

Sauer ¹⁹⁶⁶ - eggs of *Struthio* n. sp. from SW Africa
Kalahari sands (Late Tertiary - Early Pleist.)
Cimbabasia no. 14

Ligon - 1967 Relationships of *Cathartidae*
to *Struthio*, *Spheniscus* *heurns* & *Struthio*
Occas. Papers Mus. Zool. Univ. Mich # 651

Eocene? ~~supra~~ ~~sub~~ ~~middle~~ ~~lower~~

~~Asiatic~~

Eremopteris *locatus* Andrews 1904

Cyprus

Africa
Libya

Algeria
Arabia

1971 *Natur* 234, 1971B *Archaeopteris* again (Heilmann?)

1971 *Naturwissenschaften*, Rundsch., 27: 7, 312, Vogt, Hans-Henrich

"Never *Archaeopteris* found."

1972 A Walker Adick D. New light on the origin of birds &

crocodiles *Natur* 237: 5353, 259-263.

✓ 575 pelvis, ^{crural} ~~sternum~~ ^{vertebrae}, furcula, 2 cora, 2 scap ² ~~2~~
Beds 212 furcula only

1050 2 comp. humeri, 2 comp. alnae, 2 comp. radii
(9 mi 16713) wings

269, 2 comp. humeri, 2 comp. ulnae, 1 comp. radius
wings 2 scap, 1 coracoid, 2 carphometa, 1 ray of
wing phalanges, carpals, a few vertebrae

✓ 1052 - sternum, pelvis R prox humerus, furcula
Body R femur, 2 coracoids, 2 scapulae, vertebrae

✓ 31, 2 inc. sterna (both ~~with~~ ^{with} manubrium separate)
2 pelvis, RTL femora (maybe 2 indivs.)
2 Bodies 1 comp, 1 inc furcula, 1 p. of femur L
(2 sets RTL coracoids comp., R comp cora. & left
upper end cora.)
2 R, 2 L scapulae, vertebrae & ribs

✓ 371 pelvis, sternum, furcula,
Body prox L humerus, comp R, prox L femur
RTL cora., RTL scap. vertebrae, ribs

✓ 302, pelvis, sternum, L & R femora
Body furcula (with diseased left clavicle)
RTL coracoid, RTL scap, vertebrae

✓ 139 - articulated w/ thoraxes, sternum,
Body 2 corae, 2 scap, furcula; and
pelvis, 2 femora & vert. column;
ribs

141 complete except fibrocart

✓ Condor (modern skeletons)

Co

Schaeffer, Bobb

The Origin of a mammalian ordinal
character, Evolution 2(2): 164-175^{*}
June, 1948.

Origin of the Autodactyl

Introduction	1
Avian Skeleton	2
Systematics	4 +
Origins	2 $\frac{1}{2}$
Fossil Record	3 $\frac{1}{2}$
Museum	2
Cenozoic	6 ?
	19
Index	1
	20

Yedevicia, Alan

The bony stapes: a new character in avian systematics, (Also a Green River flamingo) mentioned

Ostrom, John H.

Hypothetical stages in the evolution of flight

Rich, Pat Vickere

The last 100 million years of birds in Australia

Wells Hofer, Peter

On the new Archaeopteryx specimen

Parent Birds & Their young
by Alexander, F. Skutch

(Cov. Herron Hooks Series No. 2)

Univ Texas Press, Austin 1976

203p. illus \$27.50

Reviewed by Dean Amadon in

BioScience 1135 Sept. 1976 (269) 1574

Paleoecology of Terrestrial Plants
Basic Principles & Techniques.
By V. A. Krasilov

Translated from Russian edition
(Vladivostok, 1972) by Hilary Hardin
Halsted (Wiley) New York, and
Israel Program for Scientific Translations,
Jerusalem 1975 viii + 284 pp. illus

\$24.50

Reviewed in Science for Oct. 29, 1976, by
David L. Dilcher Paleobotanical Lab, Dept Plant Scis. Indiana U.
Bloomington, Ind.

Send Pseudontornis to

Dr. C. Harrison

Dept. Palaeontology

British Museum (Natural History)

Cromwell Road, London S.W.7 ENGLAND

Mr. C. A. Walker

Same address as above

Mauacalla Paper to:

Dr. A. Wetmore

United States National Museum

Washington, D.C. 20560

Dr. Richard Tedford

Dept. Vertebrate Paleontology

American Museum of Natural History
New York 10024

Sent from
Jacek
Dec. 1, 1970
also
over name date

Seed Mancalla (Contrib #203)

Mr. Roy ^FKohl

5157 Dow's Prairie Road

McKinleyville, Calif. 95521

Dr. Frank H. Rimmer

Dept. Geology & Earth Science

Humboldt State College, ~~City~~ Arcata, Calif. 95521

Dr. Pierce Brodke

Dept. Zoology

University of Florida

Gainesville, Fla. 32603

Mrs. Lean Cohn

4787 Beaumont St.

La Mesa, Calif.

92041

Linton claimed they were from Shell Mounds of Indians and some Indian dog remains were in the same lot. Did Linton dig down through a Recent midden into a Pleistocene shell stratum? Did Chendytes survive till Recent time on the islands? Or did Linton simply mix his materials and forget his data when he brought the dog and Chendytes bones to me as of San Nicholas Id.?

Did Indians bring the fossil bones into their camp sites of Recent age? (not likely)

Pleistocene (?)

#769

Channel Ids. Material collected by C.B. Linton
represents at least 3 individuals (6 bones)
of Chendytes lawi

Source of the material brought by C.B. Linton about
1910 or 1912 is in doubt. He collected in many
places and kept no accurate data. The above
specimens were said to be from San Nicolas Id.
No exposure there can be found to correspond. (over)

10/18/46
Total 30

Bird bones from 66 [today]

* *Chendytes lawi* - Diving Goose

2 complete femora

1 fragment of femur

1 " " fibiotarsus

✓ 1 " " tarsometatarsus

1 humerus (identification questioned)

2 pedal phalanges (" ")

1 coracoid

* *Stercorarius* sp.? (probably extinct)
Jaeger

1 humerus (in 2 pieces)

Gavia pacifica - loon

1 Humerus - Loon (large)

Gavia immer? - Loon (large)

1 Carpalometacarpus (prox. end)

✓ *Actinophorus occidentalis* - Grebe

1 half of lower jaw

Puffinus griseus - Sooty Shearwater

1 distal end + fibiotarsus

1 fragment carpalometacarpus

1 coracoid

Diomedea albatrus? - Albatross

1 distal end fibiotarsus

Fulmarus glacialis - Fulmar

1 humerus

Thalasseus ^{ulna from} ~~corax~~ ^{sp.} ~~penicillatus~~ - Cormorant

1 ulna

✓ *Puffinus griseus* ^{ulna from} ~~griseus~~ ^{sp.} ~~phalaenx~~

one

Melanitta deglandi? - Scoter Duck

1 shaft Femur

Branta canadensis? - Canada Goose

1 fragment calcometacarpus

Goose species?

1 distal end fibiotarsus

Species?

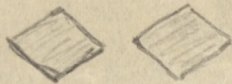
2 vertebrae

1 Femur shaft

~~*Sula* (cf. *dactylatra*)~~ *Morus repens*

1 radius, 1 tarsus, 1 key bone

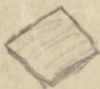
Double
Red Diamond



Genus or subgenus

} Holotype

Single
Red Diamond



Species or subspecies

Red diamond
with black
"S"



Synotype

Approved by Stock
for use at S.A.M.
1931



DEFINITIONS OF KINDS OF TYPE SPECIMENS.

Holotype.- A single specimen on which a new species or subspecies is based.

Cotype (or Syntype).- Two or more specimens on which a new species or subspecies is based, no one specimen being designated as the holotype.

Paratype.- A specimen mentioned as having been used in addition to the holotype in preparing the original description of a new species or subspecies for which a holotype is designated.

imp. **Lectotype.**- A single specimen selected by a later worker from the original cotypes of a species or subspecies as the holotype of that species or subspecies when the later worker finds that the original cotypes do not all belong to a single species or subspecies.

Neotype.- A specimen selected to take the place of an original type of a species or subspecies when the original type has been lost. A neotype may be either a neoholotype or a neocotype.

Plesiotype (or Hypotype).- A specimen which was not used in the original description of a species or subspecies, but which is used for a later description or figure of it.

Heautotype.- A specimen figured by an author as an illustration of a species or subspecies which had previously been described as new by him. This is really only one particular kind of a plesiotype.

Allotype.- A specimen chosen by the original author of a species or subspecies, in addition to the holotype, to show some part of the body not shown in the holotype. This is really only one particular kind of a paratype, if it is chosen at the time when the species or subspecies is originally described. If chosen later, it is a particular kind of a plesiotype.

Onomatype.- A specimen which has been cited in print (a cited specimen), but which has not been used to illustrate anything not previously known about the morphology of the species or subspecies to which it is referred.

Morphotype.- A specimen which has been figured in print (a figured specimen), but which has not been used to illustrate anything not previously known about the morphology of the species or subspecies to which it is referred.

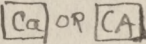
Topotype.- A specimen collected from the same horizon as the original holotype or cotypes and from the same locality as the originals, or within a few miles of that place.

Metatype.- A topotype identified by the original describer of the species or subspecies to which it is referred, but at a date subsequent to the publication of the original description.

Homeotype.- A specimen that has been identified by a worker who is recognized as an authority on the group of organisms to which it belongs, after the specimen has been carefully compared by him with the original type or types of the species or subspecies to which it is referred.

Ideotype.- A specimen collected from some other general locality than the original types (that is, not a topotype) that has been identified by the original author of the species or subspecies to which it is referred at a date subsequent to the publication of the original description. This is like a metatype, except that it does not come from the general locality from which the original type specimens of the species or subspecies were collected.

--.Ben Howell.--

KINDS OF TYPE SPECIMENS	RECOMMENDED MARKS	PERMISSIBLE MARKS
BASIC TYPES	HOLOTYPE	
	COTYPE OR SYNTYPE	 OR 
	PARATYPE	   gold
	LECTOTYPE	
	NEOTYPE	
		     gold orange red green blue
SUPPLEMENTARY TYPES	PLESIOTYPE (OR HYPOTYPE)	
	HEAUTOTYPE	
	ALLOTYPE	
		silver     silver red green blue
UNESSENTIAL PUBLISHED TYPES	ONOMATYPE (CITED)	
	MORPHOTYPE (FIGURED)	
		white  white
UNESSENTIAL UNPUBLISHED TYPES	TOPOTYPE	
	METATYPE	
	HOMEOTYPE	
	IDEOTYPE	
		white  white
	CASTS	 

Recd. Aug 4, 1971

VERTEBRATE PALEONTOLOGY

BOOKS AND PAMPHLETS FOR SALE

All items are in fair or better condition unless otherwise noted. See l. below .
Prices are in U.S. dollars. Postage extra. Invoice will accompany or follow books.
Send orders to T.H.Clark, 3450 University St. Montreal 110, Quebec, Canada.
Reasonable offers will be considered sixty days after receipt.

Some items are marked in left hand column as follows:

1. Poor condition (cover torn, etc.)
2. Autographed by author
3. Hard cover book.

Titles are given in full except for unimportant initial words and for indicated omissions (... or 'etc.')

References are abbreviated as much as possible. Some of the abbreviations used are as follows:

A.J.Bot. - American Journal of Botany	M. - Memoir
A.J.Sci. - American Journal of Science	Mus. - Museum
A.M.N. - American Midland Naturalist	N.M. - National Museum
A.M.N.H. - American Museum of Natural History	Nov. Novitate
App. - Appendix	Pr(oc). - Proceedings
A.R. - Annual Report	P.P. - Professional Paper
A.S. - American Scientist	Q.J.G.S. - Quarterly Journal Geological Society
B. - Bulletin	R.S. - Royal Society
Bot. - Botany, Botanical	Sci. - Science, Scientific
C.J.R. - Canadian Journal of Research	Senck. - Senckenbergiana
C.R.S. - Canadian Record of Science	S.M. - Science Monthly
G.S. - Geological Survey	S.M.C. - Smithsonian Miscellaneous Collections
G.S.A. - Geological Society of America	S.N.H. - Society of Natural History
J. - Journal	S.P. - Special Paper
J.P. - Journal of Paleontology	Tr(ans). - Transactions
K.S.V.H. - Kungl. Svenska Vetenskaps-akademiens Handlingar	U.S.G.S. - United States Geological Survey

nd - No date given

nr - No reference available

- ANDERSON CA -- ~~The Macropodidae of Australia~~ ~~Animal Kingdom~~
~~July 16, 1928~~
Macropus titan Owen and Thylacoleo carnifex Owen. -- Austral. Mus.
Records, 17, no. 1, p. 35-49, 7 pl., 1929 2.00
The skull of Sthenurus occidentalis Glauert. -- Austral. Mus.
Records 18, 7, p. 383-387, 2 pl., 1932 1.00
- ~~ARCHER GILBERT~~ ~~The Macropodidae of Australia~~ ~~Animal Kingdom~~
~~July 16, 1928~~
~~July 16, 1928~~
BARBOUR, EH -- A new Order of gigantic fossils. -- Univ. Neb. Univ.
studies 1. no. 4, p. 301-324, 6 pl., 1892 2.50
- BARBOUR, T. & STETSON HC -- ~~The Pleistocene of Nebraska~~ ~~Nebraska~~
~~p. 69, no. 4, p. 22-25, 1 pl., 1929~~
A revision of the Pleistocene species of Terrapene of Florida. --
M.C.Z.B. 72, no. 8, p. 295-299, 1931 1.25
- BERRY, CT -- A Miocene dog from Maryland. -- U.S.N.M.Pr. 85, p. 159-161,
193850
- BERRY CT & LYNN WG -- A new turtle, Peretresius virginianus, from the
Miocene of Virginia. -- A.P.S.Pr. 76, p. 175-190, 4 pl., 1936 1.50
- BLACK DAVIDSON -- Interim report on the skull of Sinanthropus. -- G.S.
China B. 9, p. 7-21, 6 pl., 1930 2.50
- BROWN BARNUM -- Hunting big game of other days. -- Nat. Geog., nr
p. 407-429, n.d. 1.50
See TAIT J
- ~~BROWN BARNUM~~ ~~Geological and zoological notes on the fossils of the~~
~~of the hominid lineage~~ ~~A.S.N.M., p. 151-153, 1959~~
BRYAN KIRK -- The "Palouse Soil" problem, with ... elephant remains ...
of Washington. -- U.S.G.S.B. 790-B, p. 21-45, 4 pl., 1927 1.00
- BRYAN KIRK & RAY LL -- Geologic antiquity of the Lindenmeier site in
Colorado. -- S.M.C. 99, no. 2, 76 p., 6 pl., 1940 2.50
- BUCKLAND WILLIAM -- ~~Notice on the fossil remains of great fossil animals~~
~~of Steensfield~~ ~~G.S.L. Tr. (2), 2, p. 377-404, 8 pl., map, 1828~~
Geological account of a series of animal and vegetable remains and of
rocks, ... up the Irawadi to Ava, in 1826 and 1827. -- R.S.L. Tr.
(2), 2, p. 377-404, 8 pl., map, 1828, together with PENTLAND JB --
Description of fossil remains of some animals from the north-east
border of Bengal. -- ibid, p. 393-394, 1828 12.50
On the discovery of coprolites, or fossil faeces, in the Lias at Lyme
Regis ... -- G.S.L. Tr. (2) 3, p. 223-241, 4 pl., 1829 (Presentation
copy to Professor Silliman from the author) 10.00
- 1 On the adaptation of the structure of sloths to their peculiar mode
of life. -- G.S.L. Tr. 17, p. 17-27, 1833 3.50
- BUREAU RENE -- Un oeuf fossile d'Aepyornis a l'Université Laval. --
Naturaliste Canadien 87, p. 204-208, 196050
- BURT WH -- A new goose (Branta) from the Lower Pliocene of Nevada. --
Univ. Cal. Dept. Geol. Sci. B. 18, p. 221-224, 1 pl., 1929
Bound with STIRTON RA & WEDDLE RA -- The California tapir Tapirus
haysii californicus Merriam from ... California. -- ibid. p. 225-226
and HALL ER -- A second new genus of hedgehog from the Pliocene of
Nevada. -- ibid. p. 227-231. 1.50
- CAMP CL, WELLES SP & GREEN Morton -- Bibliography of fossil vertebrates
3 1939-43. G.S.A. M. 37, 371 p., 1949 25.00
Bibliography of fossil vertebrates 1944-48. -- G.S.A. M. 57, 465 p.,
3 1953 35.00
- BRYAN KIRK -- See HIBBEN FG

- ~~CAMP CL & MOSE WH -- Bibliography of fossils published 1923-32.~~
~~G.S.A. S.P. 37, 1923, 1940~~
~~CAMP CL -- Bibliography of fossils published~~
~~1924-32.~~
~~G.S.A. S.P. 43, 1924, 1940~~
- CASE EC -- Criteria for the determination of the environment of extinct animals. -- G.S.A. B.32, p.333-338, 192175
- CASTELLANOS ALFREDO -- Un nuevo gliptodontoideo del Araucanense del valle de Yocavil (Santa Maria) de la provincia de Tucuman. Peiranoa bullifera n.gen. y n.sp. -- Universidad Nacional del Litoral (Argentina), Instituto de Fisiografia y Geologia Publ. 6, no.27, 19p., 6pl., 1946 1.00
- La presencia del genero Boreostracon Simpson en Uruguay y Brasil. -- ibid. 7, no.30, 14p., 8pl., 1947 1.25
- Nuevos restos de coraga de los generos "Proeuphractus" y "Macrophractus" Ameghino ... del valle de Yocavil ... ibid 7, no.32, 44p., 8pl., 1947 2.00
- Nuevos restos de Lomaphorops corallinus (Rov.). -- ibid. 7, no. 34, 42p., 8pl., 1948 2.00
- La presencia del genero "Urotherium" en el Araucanense del valle de Yocavil. -- ibid. 7, no.35, 16p., 8pl., 1948 1.50
- Nuevos restos del genero "Stromaphoropsis" Kragl. del Uruguay. -- ibid. 8, no. 37, 48p., 11pl., 1949 1.25
- ~~CASTELLANOS ALFREDO -- Microtherium acanthi Abel and Microtherium ...~~
~~Abel of the Microtherium ...~~
~~G.S.A. S.P. 37, 1923, 1940~~
- CHADWICK GH -- SEE ROMER AS and GROVE BH
- CHUBB SH -- See MATTHEW WD
- CLARK JD -- The later Pleistocene cultures of Africa. Sci. 150, p.833-847, 196575
- ~~CLARK JD -- The Pleistocene cultures of Africa. Sci. 150, p.833-847, 1965~~
~~G.S.A. S.P. 37, 1923, 1940~~
- CLELAND HF -- The Paleolithic Period - The Neolithic Period. Encyclop. Americana nr, p.73-75, 180-186, 191950
- COCKERELL TDA -- A fossil cichlid fish from the Republic of Haiti. -- U.S.N.M. Pr.63, Art.7, 2p., 1pl., 1923 1.00
- Fossil mammals at the Colorado Museum of Natural History. -- S.M. 17, p.271-277, 192360
- COOKE HBS -- The search for man's ancestors. -- So. Afr. Science, 2, p.34-36, 194860
- COLLINS RL -- See GAZIN CL
- COPE ED -- Vertebrata from the Tertiary and Cretaceous rocks of the North-West Territory. 1. Species from the Oligocene and Lower Miocene beds of the Cypress Hills. -- G.S.C. Cont. Can. Paleont. 3, 25p., 14pl., 1891 4.50
- COUES ELLIOTT -- Osteology of Colymbus torquatus ... Boston S.N.H. M.1, pt.2, p.131-172, 1pl., 1856 2.50
- COUTO CdeP -- Contribuição para o estudo de "Hoplophorus euphractus" Lund 1839. -- Summa Brasiliensis Geologiae 1, fasc.4, p.33-46, 7pl., 1947 1.25
- DAVID LR -- Miocene fishes of southern California. -- G.S.A. S.P.43, 193p., 16pl., 1943 4.50

- ~~DAWKINS WD -- The ... of the ... and~~
~~35, p.227-247, 1972~~
~~The ... of the ... of the ...~~
~~dillo (...) ...~~
~~three mammals of the ...~~
- DAWSON JW -- Air-breathers of the Coal Period ... of Nova Scotia. --
 Montreal, Que., 8lp., 6pl., 1863 2.50
- DEAN BASHFORD -- ~~Devonian fishes from the American Museum.~~
~~Sci., n.s. 24, p.271-282, 1929~~
~~Note on the Ohio pleistocene *Periclypterus borealis*.~~
~~Sci., n.s. 24, p.281, 1929~~
 The exhibition of fishes. -- Amer. Mus. J. 12, p.171-177, 1912 . 1.00
 Paleozoic fishes. -- G.S.A. B.23, p.224-228, 1912 1.25
 Charles Rochester Eastman. -- Sci., n.s. 49, p.139-141, 191975
- DERANIYAGALA PEP -- Fossil hunting in Africa. -- Free Lanka Rev. 1,
 no. 2, 4p., 194850
- EISELEY LC -- The South African fossil ape men: the Australopithecinae,
 By R. Broom and G.W.H. Schepers. -- Sci. 104, p.90, 194625
- FAIRCHILD MILDRED & HART HORNEILL -- A million years of evolution in
 tools. -- S.M. nr p.71-79, nd50
- FIGGINS JD -- Folsom and Yuma artifacts, part 2. -- Colorado M.N.H.
 Pr.14, no.2, 7p., 5pl., 1935 1.25
- FRYE JC & HIBBARD CW -- Pliocene and Pleistocene stratigraphy and
 paleontology of the Meade basin, southwestern Kansas. -- Geol.
 Surv. Kansas B.38, p.389-424, 4pl., 1941 1.25
 Stratigraphy and paleontology of a new Middle and Upper Pliocene
 formation of south-central Kansas. -- J.G. 69, p.261-278, 1941 . 1.00
- GAZIN CL -- Fossil hares from the Late Pliocene of South Idaho. --
 U.S.N.M. Pr.83, p.111-121, 193450
 Study of the fossil horse remains from the Upper Pliocene of Idaho.
 -- ibid. 83, p.281-230, 11pl., 1936 1.40
 The mammalian faunas of the Paleocene of central Utah. -- ibid.
 91, p.1-53, 1941 1.50
 The Late Cenozoic vertebrate faunas from the San Pedro valley, Ariz
 -- U.S.N.M. Pr. 92, p.475-518, 2pl., 1942 1.40
- GAZIN CL & SULLIVAN JM -- A new titanotheres from the Eocene of Missi-
 ssippi. -- S.M.C. 101, no.13, p.1-13, 3pl., 1942 1.00
- GAZIN CL & COLLINS RL -- Remains of land mammals from the Miocene of
 the Chesapeake Bay region. -- S.M.C. 116, no.2, p.1-21, 195060
- Gazin CL -- See GIDLEY JW
- GIDLEY JW. Significance of divergence of the first digit in the primi-
 tive mammalian foot. -- Wash. Acad. Sci. J.9, p.273-304, 1919 .. .60
 Paleontological evidence bearing on the problem of the origin of
 the American aborigines. -- Amer. Anthropologist, 14, p.18-23,
 191250
 Preliminary report on fossil vertebrates of the San Pedro valley,
 Arizona with descriptions of new species of Rodentia and Lagomorpha
 -- U.S.G.S. P.P.131-E, p.119-131, 2pl., 1922 1.00
 Fossil Proboscidea and Edentata of the San Pedro valley, Arizona.
 U.S.G.S. P.P.140-B, p.83-95, 13pl., 1926 1.50
 A Pleistocene cave deposit of western Maryland. Smithsonian Rept.
 1918, p.281-287, 6pl., 1920 1.25

GIDLEY JW & GAZIN CL -- The Pleistocene vertebrate fauna from Cumberland cave, Maryland. -- U.S.N.M. B.171, 99p., 10pl., 1938	2.25
GILMORE CW -- A new restoration of <u>Stegosaurus</u> . -- U.S.N.M. Pr.49, p.355-357, 1pl., 1915	1.00
Osteology of <u>Thescelosaurus</u> , an orthopodous dinosaur from the Lance Formation of Wyoming. -- Ibid.49, p.591-616, 4pl., 1915	1.60
Reptilian faunas of the Torrejon Puerco, and underlying Upper Cretaceous formations of San Juan County, New Mexico. -- U.S.G.S. P.P.119, 7lp., 26pl., 1919	3.50
Reptile reconstructions in the United States National Museum. -- Smithson. Rept. 1918, p.271-280, 6pl., 1920	1.50
The fauna of the Arundel Formation of Maryland. -- U.S.N.M. Pr.59, p.581-594, 5pl., 1921	1.50
A new fossil turtle, <u>Kinosternon arizonense</u> , from Arizona. -- Ibid.60, art.23, 28p., 3pl., 1922	1.25
The smallest known horned dinosaur, <u>Brachyceratops</u> . -- Ibid.61, art.3 4p., 4pl., 1922	1.00
A new sauropod dinosaur from the Ojo Alamo Formation, New Mexico. -- S.M.C. 72, no.14, 9p., 2pl., 1922	1.00
The horned dinosaurs. -- Smithson. Rept. 1920, p.381-388, 8pl., 1922	1.50
Contributions to vertebrate paleontology. -- C.G.S. B.38, 88p., 12pl. 1924	2.50
Fossil footprints from the Grand Canyon. -- S.M.C. 77, no.9, 39p., 12pl., 1926	2.50
Fossil turtles from the Pleistocene of Florida. -- U.S.N.M. Pr.71, art.15, 10p., 5pl., 1927	1.00
A new fossil turtle, <u>Trachemys</u>, from the Pleistocene of Florida. -- Ibid. 72, art. 7, 2p., 2pl., 1927	1.00
A new pterosaurian reptile from the marine Cretaceous of Oregon. -- Ibid. 73, art.24, 5p., 1928	.60
Fossil footprints from the Fort Union (Paleocene) of Montana. -- Ibid 74, art.5, 4p., 3pl., 1928	1.00
A nearly complete shell of the extinct turtle <u>Trachemys sculpta</u> . -- Ibid. 77, art.10, 8p., 3pl., 1930	1.00
A new species of extinct turtle from the Upper Pliocene of Idaho. -- Ibid. 77, art. 16, 22p., 3pl., 1930	1.00
A new species of extinct turtle from the Upper Pliocene of Idaho. -- Ibid. 77, art. 16, 22p., 3pl., 1930	1.00
A new species of troodont dinosaur from the Lance Formation of Wyoming. Ibid. 79, art.9, 6p., 5pl., 1931	1.25
A newly mounted skeleton of <u>Diplodocus</u> in the U.S. National Museum. -- Ibid. 81, art.18, 2lp., 6pl., 1932	1.50
A new species of extinct turtle from the Upper Pliocene of Idaho. -- Ibid. 82, art.7, 7p., 3pl., 1933	1.00
Reptilia of the Kirtland Formation of New Mexico. -- Ibid. 83, p. 159-193, 6pl., 1935	2.25
A new species of extinct turtle from the Upper Pliocene of Idaho. -- Ibid. 84, art. 11, 2p., 1pl., 1936	1.00

- ~~Ceratopsian dinosaurs from the Two Medicine Formation, Upper Cretaceous of Montana. -- U.S.N.M. Pr.87, p.1-18, 1939 1.25~~
~~N. Smithsonian Misc. Zool. 1939, p.1-18, 1939~~
~~1939, p.1-18, 1939~~
~~Smithsonian Misc. Zool. 1939, p.1-18, 1939~~
~~1939, p.1-18, 1939~~
A history of the Division of Vertebrate Paleontology in the United States National Museum. Ibid. 90, p.305-377, 3pl., 1941 2.00
~~Catalogue of Paleontology, Upper Cretaceous, Lower Tertiary, and Quaternary~~
~~Ibid. 92, p.1-18, 1939~~
A new fossil reptile from the Upper Cretaceous of Utah. Ibid. 93, p.109-114, 194250
~~Catalogue of Paleontology, Upper Cretaceous, Lower Tertiary, and Quaternary~~
~~Ibid. 93, p.109-114, 1942~~
Notes on the recently mounted reptile fossil skeletons in the United States National Museum. Ibid. 96, p.195-203, 8pl., 1946 1.50
Osteology of the fossil turtle Testudo praextans Lambe ... -- Ibid. 96, p.293-310, 7pl., 1946 1.25
~~Catalogue of Paleontology, Upper Cretaceous, Lower Tertiary, and Quaternary~~
~~1946, p.293-310, 7pl., 1946~~
~~Catalogue of Paleontology, Upper Cretaceous, Lower Tertiary, and Quaternary~~
~~1946, p.293-310, 7pl., 1946~~
GRANGER WALTER & GREGORY WK -- A revised restoration of the skeleton of Baluchitherium, gigantic fossil rhinoceros of Central Asia. -- Amer. Mus. Nov. 787, 3p., 193575
GRAY SW -- See LULL, RS
GREEN MORTON -- See CAMP CL
GREGORY JT -- The type of Claosaurus(?) aëvis Wieland, -- A.J.S. 246, p.29-30, 194825
The structure of Cephalerpeton and affinities of the Microsauria. -- Ibid. p.550-568, 1948 1.00
A new limbless vertebrate from the Pennsylvanian of Mazon Creek, Illinois. Ibid. p.626-663, 1pl., 1948 1.50
GREGORY WK -- The significance of the supra-symphysial depression and groove in the shovel-tusked mastodonts. -- J. Mamm. 15, p.4-12, 1934 1.00
Polyisomerism and Anthropogeny. -- Human Biol. 6, p.632-636, 193475
The rôles of undeviating evolution and transformation in the origin of man Amer. Nat. 69, p.385-404, 1935 1.50
Williston's Law relating to the evolution of skull bones in the vertebrates. -- Am. J. Phys. Anthropol., 20, p.123-152, 1935 1.50
The bridge that walks. -- Nat. Hist. 39, p.33-48, 1937 1.50
The roles of motile larvae and fixed adults in the origin of the vertebrates. Quart. Rev. Biol., 21, p.318-364, 1946 1.25
The Monotremes and the palimpsest theory. -- A.M.N.H. B.88, 52p., 2pl. 1947 2.00
GREGORY WK & MURPHY RC -- Remarks on the origins of the Ratites and penguins. -- Linn. Soc. N.Y. Pr.45,46, 17p. 1933-34 1.00
GRIER NM -- The Hitchcock lecture upon ichnology, and the Dartmouth College ichnological collection. -- A.M.N. 10, p.161-195, 1927 1.25
GRAFFHAM A -- See HIBBARD CW
GREGORY WK -- See GRANGER WALTER
GROVE BH -- See ROMER AS

HALL ER	-- See BURT WH	
HAWKINS HL	-- Humanity in geological perspective. -- Smithson. Rept. 1939, p.253-264, 1940	.75
HAY OP	-- Contribution to the knowledge of the extinct sirenian <u>Desmostylus hesperus</u> Marsh. -- U.S.N.M. Pr. 49, p.381-397, 3pl., 1915	1.25
	Descriptions of species of Pleistocene vertebrata ... -- Ibid. 59, p.599-642, 9pl., 1921	2.50
	Description of a new fossil sea-cow from Florida, <u>Metaxytherium floridanum</u> -- Ibid. 61, art.17, 4p., 1pl., 1922	1.00
	Descriptions of remains of <u>Bison occidentalis</u> from central Minnesota. -- Ibid. 63, art.5, 8p., 2pl., 1923	1.25
	Notes on the osteology and dentition of the genera <u>Desmostylus</u> and <u>Cornwallius</u> . -- Ibid. 65, art.8, 8p., 2pl., 1924	1.25
	Further consideration of the shell of <u>Chelys</u> and of the constitution of the armor of turtles in general. -- Ibid. 73, art.3, 12p., 2pl., 1928	1.25
	Further and detailed description of the type of <u>Elephas roosevelti</u> Hay ... Ibid. 66, art.34, 6p., 4pl., 1925	1.50
	On remains of mastodons found in Texas, <u>Anancus brazosius</u> and <u>Gomphotherium cimarrones</u> . -- Ibid. 66, art.35, 15p., 4pl., 1925	1.50
	A collection of Pleistocene vertebrates from southwestern Texas. -- Ibid. 68, art.24, 18p., 8pl., 1926	1.50
	On the geological age of Pleistocene vertebrates found at Vero and Melbourne, Florida. -- Wash. Acad. Sci. J.16, p.387-392, 1926	.50
HIBBARD CW	-- Two new sunfish of the family Centrarchidae from the Middle Pliocene of Kansas. -- Ibid. 24, p.177-185, 2pl., 1936	1.25
	A new fish, <u>Listracanthus eliasi</u>, from the Pennsylvanian of Nodaway County Missouri. -- Ibid. 25, p.169-170, 1pl., 1938	1.00
	Four new rabbits from the Upper Pliocene of Kansas. -- A.M.N. 21, p.506-513, 1939	1.00
	Notes on some mammals from the Pleistocene of Kansas. -- Kan. Acad. Sci. Tr.42, p.463-479, 5pl., 1939	1.50
	Notes on additional fauna of Edson quarry of the Middle Pliocene of Kansas Ibid., p.457-462, 1939	.50
	Occurrence of <u>Corvalces scotti</u> Lydekker in Kansas. -- Kan. Acad. Sci., Tr. 43, p.411-415, 1940	.60
	A new <u>Synaptomys</u> from the Pleistocene. Univ. Kan. Sci. B.26, p.367-371. 1pl., 1940	.75
	A new pycnodont fish from the Upper Cretaceous of Russell County, Kansas. Ibid. p.373-375, 1pl., 1940	.75
	A new Pleistocene fauna from Meade County, Kansas. -- Kan. Acad. Sci. Tr.43, p.417-425, 2pl., 1940	.50
	The Borchers fauna, a new Pleistocene interglacial fauna from Meade County Kansas. -- G.S.Kan., B.36, p.197-220, 2pl., 1941	1.25
	Mammals of the Rexroad fauna from the Upper Pliocene of southwestern Kansas. -- Kan. Acad. Sci. Tr.44, p.265-311, 3pl., 1941	2.00
	New mammals from the Rexroad fauna, Upper Pliocene of Kansas. -- A.M.N. 26, p.337-368, 3pl., 1941	1.50
	Paleoecology and correlation of the Rexroad fauna from the Upper Pliocene of southwestern Kansas. -- Univ. Kan. Sci. B.27, p.79-104, 1941	1.00
HIBBARD CW & GRAFFHAM ALLEN	-- A new pycnodont fish from the Upper Cretaceous of Rocks County, Kansas. -- Ibid. 27, p.71-77, 1pl., 1941	.75
HIBBARD CW	-- See FRYE JC	

- HIBBEN FG -- Evidences of early occupation in Sandia cave, New Mexico ... -- S.M.C. 99, no.23, 1-44p., 14pl., 1941. Together with BRYAN KIRK -- Correlation of the deposits of Sandia cave, New Mexico, with the glacial chronology. -- Ibid. p.45-64, 1941 3.00
- HICKOCK MO & WILLARD BRADFORD -- Dinosaur foot tracks near Yocumtown, York County, Penn. -- Penn. Acad. Sci. Pr.7, p.55-58, 193375
- HOCKETT CF & ASCHER ROBERT -- The human revolution. -- A.S. 52, p.70-92, 1964 1.00
- HOOF VLV -- See RUSSELL RD. See CAMP CL
- HOOTON EA -- Homo sapiens - whence and whither? -- Sigma Xi Quart., 23, no.1, p.22/24-29, 1935 1.25
- HRDLICKA ALES -- The Neanderthal phase of man. -- Smithson. Rept. 1928, p.593-621, 4pl., 1929 1.25
- HUENE Fv -- Carnivorous Saurischia in Europe since the Triassic
Contribution to the vomer-parasphenoid question
Lines of phyletic and biological development of the Ichthyopterygia. -- G.S.A. B34, p.449-468, 1923 1.00
- HYDE JE -- Collecting fossils from the Cleveland shale. -- Nat. Hist. 26, no.5, p.496-504, 1926 1.25
- JARVIS E -- The oldest tetrapods and their forerunners. -- S.M. Mar. 1955, p.141-154, 1955 1.00
- JEPSEN GL -- Riddles of the terrible lizards. -- Amer. Sci. 52, p.227-246, 1964 1.00
- KELLOGG REMINGTON -- Description of the skull of Megaptera miocaena, a fossil a fossil humpback whale from the Miocene ... of ... California. -- U.S.N.M. Pr.61, art.14, 18p., 4pl., 1922 1.50
Description of an apparently new toothed cetacean from South Carolina. -- S.M.C. 76, no.7, 7p., 2pl., 1923 1.00
Description of two squalodonts ... (Miocene) Maryland; and notes on the shark-toothed cetaceans. -- U.S.N.M. Pr.62, art.16, 69p., 20pl., 1923. 3.50
A fossil porpoise from the Calvert Formation of Maryland. -- Ibid. 63, art.14, 39p., 18pl., 1924 2.25
Description of a new genus and species of whalebone whale from ... Maryland. -- Ibid. 63, art.15, 14p., 6pl., 1924 1.50
Tertiary pelagic mammals of eastern North America. -- G.S.A. B.35, p.755-766, 192475
On the occurrence of remains of fossil porpoises of the genus Eurhinodelphis in North America. -- U.S.N.M. Pr.66, art.26, 40p., 17pl., 1925 .. 2.25
A fossil physeteroid cetacean from ... California. -- Ibid. art.27, 8p., 2pl., 1925 1.25
Supplementary observations on the skull of the fossil porpoise Zarhachis flagellator Cope. -- Ibid. 67, art.28, 18p., 5pl., 1926 1.50
Kentriodon pernix, a Miocene porpoise from Maryland. -- Ibid. 69, art.19 55p., 14pl., 1927 3.00
A new cetothere from southern California. -- Univ. Calif. Dept. Geol. Sci. B.18, p.449-457, 1929 1.00
Three Miocene porpoises from the Calvert Cliffs, Maryland. -- U.S.N.M. Pr.105, p.101-156, 21pl., 1955 2.25
Fossil Marine mammals from the Miocene Calvert Formation of Maryland and Virginia. -- U.S.N.M. B.247, pts.1,2, 63p., 32pl., 1965 (see addenda) 3.50
Cetothere skeletons from the Miocene Choptank Formation of Maryland and Virginia. Ibid. B.294, 40p., 25pl., 1969 2.50
- KELLY WL -- Tar as a trap for unwary humans. -- A.J.S. 238, p.451-452, 1940 , .50
- KINDLE EM -- Note on a mammoth tusk from the Arctic archipelago. -- A.J.S. 8, p.183-185, 192450
- KIRBY-SMITH HT -- See McCRADY EDWARD
- KRUIZINGA P -- Apateodus corneti (For.).. Senonian .. netherlands. -- Konink. Akad. v. Wetenschappen te Amsterdam Pr.27, 21p. 2pl., 1924 2.50

LAMBE IM	-- The vertebrata of the Oligocene of the Cypress Hills, Saskatchewan G.S.C. Contrib. Can. Paleont. 3, 4, 65p., 8pl., 1908	3.50
	On the vertebrata of the Oligocene of the Cypress Hills, Saskatchewan G.S.C. Contrib. Can. Paleont. 3, 4, 65p., 8pl., 1908	
	5, 62p., 11pl., 1912	
	On <u>Arctotherium</u> from the Pleistocene of Yukon. -- Ott. Nat. 25, p.21-26, 3pl., 1911	1.00
	A new genus and species of <u>Ceratopsia</u> from the Belly River Formation of Alberta. -- Ibid. 27, p.109-116, 3pl., 1913	1.00
	On the fore-limb of a carnivorous dinosaur from the Belly River Formation of Alberta. -- Ibid. 27, p.129-135, 5pl., 1914	1.25
	On <u>Gryposaurus notabilis</u> , a new genus and species of trachodont dinosaur from the Belly River Formation of Alberta. -- Ibid. 27, p.145-155, 3pl., 1914	1.00
	The Cretaceous theropodous dinosaur <u>Gorgosaurus</u> . -- G.S.C. M.100, 84p., 49ill., 1917	3.00
	The Cretaceous theropodous dinosaur <u>Gorgosaurus</u>. -- G.S.C. M.100, 84p., 49ill., 1917	
	200, 50p., 10ill., 1920	
LAVERDIERE JW	-- Description d'une plaque dentaire de dipneuste <u>Palaedaphus ferquensis</u> n.sp., du Devonien superieur du Boulonnais. -- Soc. Geol. du nord, Ann. 54, p.94-99, 2pl., 1929	.50
	Description d'une plaque osseuse d' <u>Heterosteus</u> (groupe des Arthrodira) du Frasnien de Trelon. -- Ibid. 55, p.61-69, 1pl., 1930	.50
LEIDY JOSEPH	-- <u>Bathynathus borealis</u> , an extinct saurian of the New Red Sandstone of Prince Edward Island. -- Acad. Nat. Sci. Phila. J. (2), 2 art.31, p.327-330, 1pl., 1854. Photocopy substituted for original plate	1.50
	U.S.G.S. Rept. 1, 25p., 27pl., 1873	
LOGIER EBS	-- Some account of the amphibians and reptiles of British Columbia. -- Roy. Can. Inst. Tr.18, pt.2, p.311-336, 1932	.75
LOOMIS FB	-- Origin of South American faunas. -- G.S.A. B.32, p.187-196, 1921	.50
	Dentition of artiodactyls. -- Ibid. 36, p.583-604, 1925	1.00
LUCAS FA	-- The Hall of Dinosaurs. A.M.N.H. Guide Leaflet Series, no.70, 20p., 12pl., n.d. (?1927)	1.00
LULL RS	-- Dinosaurian distribution. -- A.J.S. 29, p.1-39, 1910	.75
	The armor of <u>Stegosaurus</u> . -- Ibid. p.201-210, 1910	.75
	Sauropoda and Stegosauria of the Morrison of North America ... -- G.S.A. B.26, p.323-334	.75
	On the functions of the "sacral brain" in dinosaurs. -- A.J.S. (4), 44, p.471-477, 1917	1.00
	Fossil footprints from the Grand Canyon of the Colorado. -- A.J.S. (4), 45, p.337-346, 3pl., 1918	1.25
	New Tertiary artiodactyls. -- Ibid. 50, p.80-130, 1pl., 1920	1.50
	The Cretaceous armored dinosaur <u>Nodosaurus textilis</u> Marsh. -- Ibid. (5), 1, p.97-126, 4pl., 1921	1.25
	Restoration of <u>Blastomeryx marshii</u> . -- Ibid. 3, p.159-161, 1pl., 1922	.75
	Primitive Pecora in the Yale museum. -- Ibid. 4, p.111-119, 1922	.50
	Connecting and missing links in the ascent to man. From - Creation by evolution, Frances Mason, ed. -- p.255-269, New York, 1928	.75
	Triassic footprints from Argentina. -- A.J.S. (5), 240, p.421-425, 1pl., 1942	.75
	Chugwater footprints from Wyoming. Ibid., p.500-504, 1pl., 1942	.75
	Fossil gavials from north India. -- Ibid., 242, p.417-430, 1944	.75
	LULL RS & WRIGHT JR. -- The Dinosaurian Fauna of North America. G.S.C. M.100, 84p., 49ill., 1917	
	LULL RS & WRIGHT JR. -- The Dinosaurian Fauna of North America. G.S.C. M.100, 84p., 49ill., 1917	
	200, 50p., 10ill., 1920	

- LYNN WG -- A nearly complete carapace of a fossil turtle *Amyda virginiana* (Clark). -- U.S.N.M. Pr.76, art.26, 4p., 2pl., 192975
- LYNN WG -- See BERRY CT
- MAHONY DJ -- The problem of antiquity of man in Australia. -- N.M.Melbourne M.13, p.5-56, 3pl., 1943. Together with -- The Keilor fossil skull. -- Ibid., p. 57-81, 8pl., 1943 2.00
- MARSH OC -- Vertebrate fossils of the Denver Basin. -- U.S.G.S. Mon.27, p.473-550, 11pl., 1897 9.00
- MARTIN C -- A rock shelter on Nyazongo mountain ... Southern Rhodesia. -- Queen Victoria Mem. Lib. Occ. Pap. 1, 18p., 1938 1.00
- MATHER KF -- Mother Earth and her sons. -- Harvard Alum. B. p.43-45, n.d. .. .50
- The future of man as an inhabitant of the earth. S.M. 50, p.193-203, 1940
- Also Smithson. Rept 1940, p.215-230, 194150
- Man's physical environment and man's behavior. Sigma Xi Quart. 29, p.130-142, 194150
- MATTHEW WD -- ~~The Amphibia of the Great and Little Plains. -- U.S.N.M. Pr. 11, 1927-1929, 1931~~
- Fossil bones in the rock; the fossil quarry near Agate, .. Nebraska. -- Nat. Hist. 23, p.359-369, 1923 1.00
- Recent progress and trends in vertebrate paleontology. -- G.S.A. B.34, p.401-418, 192375
- Correlation of the Tertiary formations of the Great Plains. -- Ibid. 35, p.743-754, 192475
- A new and remarkable hedgehog from the later Tertiary of Nevada. -- Univ. Cal. Dept. Geol. Sci. B. 18, p.93-102, 2pl., 1929 1.00
- MATTHEW WD & CHUBB SH -- Evolution of the horse. -- A.M.N.H. Guide Leaflet ser. 36, 67p., ill., 1924 2.50
- MCCRADY EDWARD, KIRBY-SMITH HT, & TEMPLETON HARVEY -- New finds of Pleistocene jaguar skeletons from Tennessee caves. -- U.S.N.M. Pr.101, p.497-511, 1pl., 1951 1.00
- MCGREW PO -- A new procyonid from the Miocene of Nebraska. -- Field Mus. Nat. Hist., Geol. ser. 8, p.33-36, 194150
- A new Miocene lagomorph. -- Ibid. 8, p. 37-41, 194150
- MEADE GE -- A new erinaceid from the Lower Miocene. Ibid. 8, p.43-47, 1941 .. .50
- MILLER AH -- The passerine remains from the Rancho la Brea in the paleontological collections of the University of California. -- Univ. Cal. Dept. Geol. Sci. B. 19, no.1, p.1-22, 1pl., 192975
- MILLER GS -- Remains of mammals from caves in the Republic of Haiti. -- S.M.C. 74, no.2, 8p., 192275
- The controversy over human "Missing Links". Smithson Rept. 1928, p.413-465, 5pl., 1929 2.00
- The supposed occurrence of an Asiatic goat-antelope in the Pleistocene of Colorado. -- S.M.C. 82, no.14, 2p., 2pl., 1930 1.00
- ~~MILLER GS -- The Amphibia of the Great and Little Plains. -- U.S.N.M. Pr. 11, 1927-1929, 1931~~
- ~~MILLER GS -- The Amphibia of the Great and Little Plains. -- U.S.N.M. Pr. 11, 1927-1929, 1931~~
- ~~MILLER GS -- The Amphibia of the Great and Little Plains. -- U.S.N.M. Pr. 11, 1927-1929, 1931~~
- MOCK CC -- See OSBORN HF
- NEUVILLE H. -- On the extinction of the mammoth. Smithson. Rept. 1919, p.327-328 3pl., 1921 1.00
- ~~OLSON EC -- The Amphibia of the Great and Little Plains. -- U.S.N.M. Pr. 11, 1927-1929, 1931~~
- ~~OLSON EC -- The Amphibia of the Great and Little Plains. -- U.S.N.M. Pr. 11, 1927-1929, 1931~~
- OLSON EC -- See ROMER AS

OSBORN HF	Is <u>Menescotherium</u> a member of the Chalicotherioidea. -- Am. r.	
	Nat. 26, p.506-509, 1892	.40
	The Ancylopoda, <u>Chalicotherium</u> and <u>Artionyx</u> . Ibid. 27, 118-132, 1893	1.00
	A division of the eutherian mammals into the Mesoplacentalia and Cenoplacentalia. -- N.Y.Acad. Sci. Tr.13, p.234-237, 1894	.40
	Frontal horn on <u>Aceratherium incisivum</u> . -- Sci. n.s. 9, p.161-162, 1899.	.60
	Origin of the Mammalia. -- Sci. n.s. 7, p.176-178, 1898	.40
1	Phylogeny of the rhinoceroses of Europe. A.M.N.H. B.13, p.229-267, 1900	1.50
	Des méthodes précises mises actuellement en oeuvre dans l'étude des vertébrés fossiles des Etats-Unis d'Amérique. -- Int. Geol. Congr., 8th. Paris 1900, C.R., p.353-356, 1901	.50
	Correlation des horizons de mammifères tertiaires en Europe et en Amérique Ibid., p. 357-363, 1901	1.25
	On the origin of the rhinoceroses of Europe. A.M.N.H. B.13, p.229-267, 1900	
	and <u>Dicynodon</u>. Sci. n.s. 37, p.275-276, 1903	
	An Upper Pliocene cave. -- Ibid., 17, p.312-314, 1903	.50
	On Vertebrata of the Mid-Cretaceous of the North West Territory. C.R.S. 9 p. 86-88, 1903	.25
	The present problems of paleontology. -- Congr. Arts & Sci. (St.Louis 1904) 4, p.566-585, 1905	.60
	Recent zoöpaleontology. -- Sci. n.s., 21, p.315-316, 1905	.30
	Ten years progress in the mammalian paleontology of North America. -- Internat. Cong. Zoöl., 6th, C.R., p. 86-113, 15pl., 1905	3.00
	Recent vertebrate paleontology. Fossil mammals of Mexico. -- Sci. n.s. 21, p.931-932, 1905	.30
	Skull and skeleton of the sauropodous dinosaurs, <u>Morosaurus</u> and <u>Brontosaurus</u> . -- Sci. n.s. 22, p.374-376, 1905	.40
	Origin and history of the horse. -- Address before the New York Farmers, 16p., 17pl., n.d.	2.00
	A mounted skeleton of the Columbian mammoth (<u>Elephas columbi</u>). -- A.M.N.H., B.23, p.255-257, 1907	.50
	Correlation of the Cenozoic through its mammalian life. -- J.G. 18, p.201-215, 1910	1.00
	<u>Eomoropus</u> , An American Eocene chalicothere. -- A.M.N.H. B.32, p.261-274, 1913	1.00
	Lower Eocene titanotheres. Genera <u>Lambdaotherium</u> , <u>Eotitanops</u> . -- Ibid. p.407-415, 1913	1.00
	Crania of <u>Tyrannosaurus</u> and <u>Allosaurus</u> . -- p.3-30, 4pl.	
	Integument of the iguanodont dinosaur <u>Trachodon</u> . -- p.31-54, 6pl.	
	Cranionetry of the Equidae. -- p.55-100	
	A.M.N.H. M. n.s., 1, pts.1,2,3, pages and plates as above, 1912	9.00
	Skull of <u>Bathyopsis</u> , Wind River uintathere. -- A.M.N.H. B.32, p.417-420, 3pl., 1913	1.25
	Close of Jurassic and opening of Cretaceous time in North America. -- G.S.A. B.26, p.295-302, 1915	.75
	A long-jawed mastodon skeleton from South Dakota, and phylogeny of the Proboscidea. -- Ibid., 29, p.133-137, 1917	.75
	Observations on the skeletons of <u>Moropus cooki</u> in the American Museum. -- Ibid., 29, p.131-133, 1917	.50
	New titanotheres of the Huerfano. -- A.M.N.H. B.41, p.557-569, 1919	1.00
	Evolution, phylogeny, and classification of the Proboscidea -- A.M.N.H., Nov.1, p.1-15, 1921	1.00
	Adaptive radiation and classification of the Proboscidea. -- Nat. Acad. Sci., Pr.7, p.321-324, 1921	.75
2	Resemblances and contrasts between zoölogic and paleontologic research in mammalogy, etc. -- J.Mamm. 2, no.1, p.1-11, 1921	1.50

OSBORN HF -- Evolution, phylogeny, and classification of the Mastodontoidea. --	
G.S.A. B.32, p.327-332, 1921	.50
Orthogenesis as observed from paleontological evidence beginning in the	
year 1889. -- Amer. Nat. 56, p.134-143, 1922	.75
Orthogenesis as observed from paleontological evidence beginning in the	
year 1889. -- Amer. Nat. 56, p.134-143, 1922	
Orthogenesis as observed from paleontological evidence beginning in the	
year 1889. -- Amer. Nat. 56, p.134-143, 1922	
Species of American Pleistocene mammoths. <u>Elephas jeffersoni</u> , new species	
Nov. 41, p.1-16, 1922	.75
Pliocene (Tertiary) and Early Pleistocene (Quaternary) Mammalia of East	
Anglia, Great Britain ... -- Geol. Mag., 59, p.432-440, 1922	.75
Migrations and affinities of the fossil proboscideans of Eurasia, North	
and South America, and Africa. -- Amer. Nat. 56, p.448-455, 1922	.50
Publication standards in vertebrate paleontology. -- Wash. Biol. Soc.,	
Pr.36, p.1-6, 1923	.25
<u>Baluchitherium grangeri</u> , a giant hornless rhinoceros from Mongolia. --	
A.M.N.H. Nov.78, p.1-15, 1923	1.00
Ancient fauna of Mongolia discovered by the Third Asiatic Expedition of	
the American Museum of Natural History. -- Sci. 57, p.729-732, 1923 .	.60
Titanotheres and lophiodonts in Mongolia. A.M.N.H. Nov.91, p.1-5, 1923 .	.50
<u>Cadurcotherium</u> from Mongolia. -- Ibid. 92, p.1-2, 1923	.40
The discovery of an unknown continent. -- Nat. Hist. 24, p.132-149, 1924	1.00
American men of the dragon bones. -- Ibid. 24, p.350-365, 1924	1.00
<u>Eudenoceras</u> , Upper Eocene amblypod of Mongolia. -- A.M.N.H. Nov.145,	
p.1-5, 1924	.60
<u>Andrewsarchus</u> , giant mesonychid of Mongolia. -- Ibid. 146, p.1-5, 1924 .	.60
<u>Parelephas</u> in relation to phyla and genera of the family Elephantidae. --	
Ibid. 152, p.1-7, 1924	.60
Additional generic and specific stages in the evolution of the Proboscidea	
Ibid. 154, p.1-5, 1924	.50
Final conclusions on the evolution, phylogeny, and classification of the	
Proboscidea. -- Amer. Phil. Soc. Pr.64, no.1, p.17-35, 1925	1.00
Discoveries in the Gobi desert by the American Museum expeditions. --	
Nature, 8p., Sept. 1926	.60
Upper Eocene and Lower Oligocene titanotheres of Mongolia. -- A.M.N.H.	
Nov.202, p.1-12, 1925	.75
Additional new genera and species of the mastodontoid Proboscidea. --	
Ibid. 238, p.1-16, 1926	1.00
Mammals and birds of the California tar pools. -- Nat. Hist. 25,	
p.527-543, 1pl., 1925	1.25
The hall of the age of man. -- A.M.N.H. Guide Leaflet Ser. 52, 48p.,	
18pl., 1925	1.50
The evolution of human races. -- Nat. Hist. 26, p.3-13, 1926	.90
Mastodons and mammoths of North America. -- A.M.N.H. Guide Leaflet Ser.	
62, 46p., 15pl., 1926	1.50
Why Central Asia? -- Nat. Hist. 26, p.263-269, 1926	.60
The romance of the woolly mammoth. -- Nat. Hist. 30, p.227-241, 1930 ..	1.00
OSBORN HF & MOOK CC -- Characters and restoration of the sauropod genus	
<u>Camarasaurus</u> Cope. -- Amer. Phil. Soc. Pr.58, p.386-396, 1pl., 1919 ..	1.00
<u>Camarasaurus</u> , <u>Amphicoelias</u> , and other sauropods of Cope. -- G.S.A. B.30,	
p.379-388, 1919	.60
OWEN R -- See DAWKINS WB	
PARKS WA -- Buried Indian workshop with remains of an extinct mammal. --	
G.S.A. B.36, p.429-434, 1pl., 1925	.75
Stanthill, Indiana, a new species of dinosaur from the Edwards	
Formation, 1926. -- G.S.A. B.36, p.429-434, 1pl., 1925	

- PARKS WA -- ~~Univ. Toronto Studies Geol. Ser. 23, p.1-43, 1pl., 1927~~
 New species of dinosaurs and turtles from the Upper Cretaceous formations of Alberta. -- Ibid. 34, p.1-33, 10pl., 1953 2.00
~~Univ. Toronto Studies Geol. Ser. 34, p.1-33, 10pl., 1953~~
~~R.S.C. 27, p.1-33, 10pl., 1953~~
 Dinosaurs in the Royal Ontario Museum. -- Univ. Toronto Quart. 4, p.179-200, 4pl., p.1935 1.00
~~Univ. Toronto Studies Geol. Ser. 34, p.1-33, 10pl., 1953~~
~~Univ. Toronto Studies Geol. Ser. 34, p.1-33, 10pl., 1953~~
 PATTEN WILLIAM -- Foundations of the face. -- Sci. Monthly, 35, p.511-521, 567, 1932 1.25
 PEI WC -- Fossil mammals from the Kwangsi caves. G.S.China, B.14, p.413-435, 1935 2.00
 On a Mesolithic(?) industry of the caves of Kwangsi. -- Ibid. p.393-411. 2pl., 1935 3.00
 PHILLIPS WENDELL -- Anthropology in the British Empire during the war. -- Amer. Anthropol. 47, p.474-479, p.194550
 Recent discoveries in the Egyptian Faiyum and Sinai. -- Sci. 107, p.666-670, 194850
 RAY LL -- See BRYAN KIRK
 RAYMOND PE -- The Anaspidia and the problem of the origin of the vertebrates. -- A.J.S. 10, p.433-436, 192590
 Two new fossil fishes from Alberta, Ibid. 551-555. Bound with above
 ROBERTS FHH -- A Folsom complex ... the Lindenmeier site in northern Colorado. S.M.C. 94, p.1-35, 16pl., 1935 2.50
 Additional information on the Folsom complex. -- Ibid. 95, p.1-38, 12pl., 1936 2.00
 ROMER AS -- Fish origins -- fresh or salt water? -- Marine Biol. and Oceanog. p.261-280, Pergamon Press, London, 195575
 ROMER AS & GROVE BH -- Environment of the early vertebrates. -- A.M.N. 16, p.805-856, 1935 2.00
 Bound with CHADWICK GH -- Summary of Upper Devonian stratigraphy, Ibid. p.857-862
 ROMER AS & OLSON EC -- Aestivation in a Permian lungfish. -- M.C.Z. Brev. 30, p.1-6, 1pl., 195475
 ROY SK -- Contributions to paleontology / includes *Oracanthus farringtoni* n.s. 7 Field M.N.H., Geol. ser. 4, p.201-220, 9pl., 1929 1.50
 RUSCONI CARLOS -- El puelchesne de Buenos Aires y su fauna (Plioceno Medio) Pt. 1, -- Inst. de fisiogr. y geol. (Argentina) 7, publ.33, p.1-99, 1948 2.00
 Do. Pt.2, Ibid. 8, 36, p.100-242, 16pl., 1949 3.00
 RUSSELL RD -- A vertebrate fauna from a new Pliocene formation in northern California. -- Univ. Cal. Publ. Dept. Geol. Sci. B.20, p.11-21, 193175
 SCHUCHERT CHARLES -- The geological horizon of the dinosaurs *Hallopus* and *Nanosaurus agilis*. -- A.J.S. 237, p.19-26, 193950
 The Upper Jurassic age of the Tendaguru dinosaur beds. -- A.J.S. (5), 27 p.462-466, 193450
 2 SHIMER HW -- Man's ancestral home. -- S.M. 46, p.249-254, 193860
 SHULER EW -- Dinosaur tracks in the Glen Rose Limestone ... Texas. -- A.J.S. (4), 44, p.294-298, 191760
 SIMPSON GG -- New reconstruction of *Lasanius*. -- G.S.A. B.37, p.397-402, 192675
 A new Paleocene mammal from a deep well in Louisiana. -- U.S.N.M. Pr.82, art. 2, p.1-4, 193250
 New Paleocene mammals from the Fort Union of Montana. -- Ibid. 83, p.221-244, 193550

SIMPSON GG	-- The Fort Union of the Crazy Mountain field, Montana, and its mammalian fauna. -- Ibid. B169, 227p., 10pl., 1937	7.50
	History of the fauna of Latin America. A.S. p.361-389, July 1950	
SMITH ER	-- Archaeology of Deadman Cave, Utah. -- Univ. Utah B.32, no.4, 43p. 10pl., 1941	1.50
SMITH GE	-- Sinanthropus -- Peking man. Its discovery and significance. S.M. 193-211, Sept. 1931	1.00
SMITH HI	-- Summary of Wisconsin archaeology. Sci. n.s. 13, p.794-795, 1901 ..	.25
STAUFFER, CR	-- The fossil elephants of Minnesota. Sci. 60, p.40-41, 1924 ...	.25
	Some Pleistocene mammalian inhabitants of Minnesota. -- Minn. Acad. Sci. Pr.13, p.20-44, 1945	.40
STERNBERG CM	-- A supplementary study of <u>Panoplosaurus mirus</u> . -- R.S.C. Tr. (3) 15, p.93-102, 1921	1.00
	Integument of <u>Chasmosaurus belli</u> . -- Can. Field Nat. 39, p.108-110, 1pl. 1925	.75
	Notes on the Edmonton Formation of Alberta. -- Ibid. 40, p.102-104, 1926	.40
	Horned dinosaur group in the National Museum of Canada. -- Ibid. 41. p.68-73, 2pl., 1927	1.00
	Dinosaur tracks from Peace river, British Columbia. -- Nat. Mus. Canada, A.R. 1930, p.59-75, 5pl., 1932	1.25
	Dinosaurs in the National Museum of Canada. -- Civil Service Review, 1, p.288-292, March 1929	.60
	New records of mastodons and mammoths in Canada. Can. Field-Nat. 44, p.59-65, 1pl., 1930	.75
	Two new theropod dinosaurs from the Belly River Formation of Alberta. -- Ibid. 46, p.99-105, 1932	.75
	A new fossil crocodile from Saskatchewan. -- Ibid. 46, p.128-133, 1932 .	.60
	The skull of <u>Leidyosuchus canadensis</u> Lambe. -- A.M.N. 13, p.157-168, 2pl., 1932	1.00
	New restoration of a hooded duck-billed dinosaur. -- J.P. 16, p.133-134 1942	
	Pachycephalosauridae proposed for dome-headed dinosaurs; <u>Stegosaurus lambei</u> n.sp. described. Together with -- A new species of selachian from the Lower Carboniferous of Canada. -- J.P. 19, 534-538, 1p.,; 539-540, 1945	
	Canadian dinosaurs. -- Nat. Mus. Canada B. 103, p.1-20, 1946	
	The Edmonton fauna and description of a new <u>Triceratops</u> ... -- Ibid. B.113, A.R.1947-48, p.32-46, 3pl. 1949	
	<u>Pachyrhinosaurus canadensis</u>, representing a new family of the Ceratopsia from Southern Alberta. -- Ibid. p.109-120, 6pl., 1950	
	Prehistoric footprints in Peace River. -- Can. Geogr. J. 6, no.2, p.92-102, 1933	
	New restoration of a hooded duck-billed dinosaur. -- J.P. 16, p.133-134 1942	
	Pachycephalosauridae proposed for dome-headed dinosaurs; <u>Stegosaurus lambei</u> n.sp. described. Together with -- A new species of selachian from the Lower Carboniferous of Canada. -- J.P. 19, 534-538, 1p.,; 539-540, 1945	
	Canadian dinosaurs. -- Nat. Mus. Canada B. 103, p.1-20, 1946	
	The Edmonton fauna and description of a new <u>Triceratops</u> ... -- Ibid. B.113, A.R.1947-48, p.32-46, 3pl. 1949	
	<u>Pachyrhinosaurus canadensis</u>, representing a new family of the Ceratopsia from Southern Alberta. -- Ibid. p.109-120, 6pl., 1950	
	Prehistoric footprints in Peace River. -- Can. Geogr. J. 6, no.2, p.92-102, 1933	

- STETSON HC Lasanius and the problem of vertebrate origin. -- J.G. 35,
p.247-263, 192775
A restoration of the anaspid Birkenia elegans Traquair. -- J.G. 36,
p.458-470, 192875
A new American Thelodus. -- A.J.S. 16, p.221-231, 192850
2 Studies on the morphology of the Heterostraci. -- J.G. 39, p.141-154,
1931 1.00
STETSON HC -- See BARBOUR T
STIRTON RA -- Artiodactyla from the fossil beds of Fish Lake Valley, Nevada. --
Univ. Calif. Dept. Geol. Sci. B.18, p.291-302, 1929 1.00
See BURT WH
STOCK CHESTER & RICHARDS HG -- A Megalonyx tooth from the Northwest Terri-
tories, Canada. -- Sci. 110, p.709-710, 194925
SULLIVAN JM -- SEE GAZIN CL
SWINNERTON HH -- Woodthorpea wilsoni. -- Q.J.G.S. 81, p.87-99, 2pl., 1925 .. 1.00
TAIT JOHN & BROWN PARNUM -- How the Ceratopsia carried and used their head.
-- R.S.C. Tr. (3) 22, iv, p.13-23, 1pl., 192860
~~TAIT JOHN -- Thelodus from the Middle Miocene of Nevada. -- Ibid. 27, p.61-69,
1pl., 194175
Extinct birds and frogs from the Upper Pliocene deposits of Nevada,
Kansas. -- Ibid., 33, p.199-205, 7pl., 194275~~
TAYLOR DN -- See CAMP CL
TEMPLETON HARVEY -- See McCRADY EDWARD
THORPE MR -- New species of Oligocene (White River) Felidae. -- A.J.S., 50,
p.207-224, 192075
Oregon Tertiary Canidae, with description of new forms. -- Ibid. (5), 3,
p.162-176, 192275
Some Tertiary Carnivora in the Marsh collection ... -- Ibid. p.423-455,
192275
The hyoid apparatus of Merycoodon. -- Ibid. 5, p.225-228, 192350
New reconstructions in the Yale Peabody Museum. -- A.J.S. (5), 6, p.91-99
6pl., 192360
The generic distinctions between Merycochoerus Leidy and Promerycochoerus
Douglass. -- Ibid. 7, p.121-131, 192460
White River (Oligocene) eomacropus. -- Ibid. p.219-226, 192460
Additional notes on Oreodontoides oregonensis Thorpe. -- Ibid. p.316-318,
192450
A new species of extinct peccary from Oregon. -- Ibid., p.393-397, 1924. .50
~~TAIT JOHN -- Thelodus from the Middle Miocene of Nevada. -- Ibid. 27, p.61-69,
1pl., 194175~~
TOLMACHOFF IP -- The carcasses of the mammoth and rhinoceros found in the
frozen ground of Siberia. -- Amer. Phil. Soc. Tr. n.s. 23, pt.1, 74p.
1929 3.50
TROYELL EL -- The vertebrate fossils of Rock Creek, Texas. -- A.J.S. (4),
39, p.613-638, 1pl., 191575
A tiny Oligocene artiodactyl, Hypsiodus alacer sp.nov. -- Ibid. 49,
p.391-398, 192050
Mechanics of crocodile vertebrae. -- G.S.A. B.36, p.605-614, 192550
Diatryma, a colossal heron. -- A.J.S. 22, p.18-34, 1931 1.00
Van HOEPEN ECN -- Vrystaatse fossiele Perde. -- Nas. Mus. Bloemfontein,
Paleont. Navorsing, . 1, 1lp. 1930 1.00
Vrystaatse wilde varke. -- Deel 2, 4, p.39-62, 1932 1.25
Fossiele Perde van Cornelia, J.V.S. -- Ibid., 2, 2, p.12-24, 193075
Die stamlyn van die Sebras. -- Ibid., 2, 3, p.25-37, 193275
Veorlopige Beskrywing van Vrystaatse soogdiere. -- Ibid. 2, 5, p.64-65,
193250

- Van HOEPEN ECN -- Voorlopige Beskrywing van Vrystaatse soogdiere. -- Nas.
Mus. Bloemfontein, Palcont. Navorsing, 2, 5, p.63-65, 193260
Oor die indeling van die Dicynodontidae, aanlading van nuwe vorme. --
Ibid., 2, 6, p.69-101, 1934 1.25
9. Some aspects in South African Archaeology - p.79-94
10. A preliminary account of new South African cultures - p.95-97
Nas. Mus. Bloemfontein, Argeologiese Navorsing, 1, 9 & 10, 1939 1.50
Die Koningse Kultur. -- Ibid. 1, 1, 11p. 4pl., 1928 1.25
- WALKER DR -- See SINCLAIR JW
- WARREN PS -- Chimaeroid fossil egg capsules from Alberta. -- J.P. 22, p.630-
631, 194825
Two new fossil fish from the Canadian Rockies, -- R.S.C. Tr.(3), 30, iv,
p.55-58, 2pl., 193675
- WEDDIE RA -- See BURT WH
- WEIDENREICH F -- The *Sinanthropus* population of Choukoutien. -- G.S. China,
B.14, 4, p.428-468, 3pl., 1935 2.50
- WEINER JS -- See OAKLEY KP
- WELLES SP -- See CAMP CL
- ~~WESTALL TS -- The Devonian Fishes of the Devonian and Lohrshausen, Germany. See
Devon. 2, p. 29-56, 1941
Ancestry of the tetrapods. Nature, 141, p.127-128, 1938
The age of certain Devonian fish-bearing strata. Geol. Mag. 78, p.27
44, 1941
On *Spermotodus punctatus* Gony, a coelacanth from the "Devonian" of Texas.
A. J. 1941, Nov. 1941, 23, p. 1938
New *Sinanthropus* material of *Trithemion*. Geol. Mag. 77, p. 45-52, 1941
1941
The middle Devonian middle Devonian. Nature, 155, p.114-117, 1945
New light on the middle Devonian. Ibid., 154, p.772-773, 1944
The Haplolepididae, a new family of late Carboniferous lamp fish.
A.M.N.U., B.42, p.121, 1944, 1944
The cephalopod fish from the Devonian of Scotland, with notes on
structure and classification of extant forms. Proc. Zool., 1945, p.121-127, 1945
The Devonian fish of Scotland. Ibid., p.201-203, 1945~~
- WETMORE ALEXANDER -- Remains of birds from caves in the Republic of Haiti. --
S.M.C. 74, no.4, 4p., 192250
Fossil birds from southeastern Arizona. U.S.N.M. Pr.64, art.5, 18p., 192475
Birds of the past in North America. -- Smithson. Rept. 1928, p.377-389,
11pl., 1929 1.50
Two new species of hawks from the Miocene of Nebraska. -- U.S.N.M.,
Pr.84, p.73-78, 193650
A Miocene booby and other records from the Calvert Formation of Maryland.
-- U.S.N.M. pr.85, p.21-23, 193840
Another fossil owl from the Eocene of Wyoming. -- Ibid, p.27-29, 1938 .. .40
- WHITE TE -- Preliminary analysis of the fossil vertebrates of the Canyon Ferry
Reservoir area. U.S.N.M. Pr.103, p.395-438, 195490
Preliminary analysis of the vertebrate fossil fauna of the Boysen
Reservoir area. -- Ibid. 102, p.185-207, 195290
- ~~WHITFIELD TE -- Fossil fishes of the Devonian of the Devonian rocks of
Canada. Pt. 2. Geol. Soc. Trans., 1938, 63, p. 1-10, 1938~~
- WHITNALL HO -- Dinosaurs and their world. -- Colgate Univ. Dept. Geol.
Publ., p.1-27, 5pl., n.d.(post 1923) 1.75
- WILLARD BRADFORD -- A natural cat mummy. -- Sci. 71, p.287-288, 193030
~~Changing tracks of the cat mummy. Ibid., 71, p. 287-288, 1930
1935~~
- ~~WILLARD BRADFORD & CHARLES AD -- Aquilinae fossils from the Pennsylvanian
ian of the Harpeth River. G.S.A. Bull., p.201-207, 1920~~

~~WILLS L. -- Description of the bones of the extinct *Castoroides ohioensis* from the Gallatin Formation, Montana. -- Phil. Soc. 14, p. 16, 2 pl., 1916~~

WINCHELL NM	-- <i>Castoroides ohioensis</i> Foster. -- Minn. Geol. & Nat. Hist. Surv., 8th A.R. 1879, p.181-183, 1 pl., 1880	.25
WOOD HE	-- A fossil rhinoceros (<i>Diceratherium armatum</i> Marsh) from Gallatin County, Montana. -- U.S.N.M. Pr.82, art.7, 4p., 3pl., 1933	.75
WOODS WH	-- <i>Homo sapiens delawarensis</i> . -- Can. J. Med. & Surg. Nov.1934, p.137-143, 1934	.75
WORMINGTON HM	-- A survey of early American prehistory. -- A.S. 50, no.1, p.230-242, 1962	1.00
WRIGHT NE	-- See LULL RS	
YOUNG CC	-- Miscellaneous mammalian fossils from Shansi and Honan. -- G.S. China, Pal. Sinica, ser. C, 9, fasc.2, 56p., 7pl., 1935	7.50
	Note on a mammalian microfauna from Yenchingkon near Wanhhsien, Szechuan. -- C.S. China, B.14, p.247-248, 2pl., 1935	.25

A D D E N D A

3	ANDREWS RC	-- On the trail of ancient man. -- 375p., num. ill., New York, 1926	3.00
	CLARK TH	-- Fossil Bison skull from Yukon Territory. -- Can. Field-Nat. 41, p.45-47, 1927	.40
	CROOK AR	-- <i>Elophas primigenius boreus</i> , Hay at Golconda, Illinois. -- Ill. State Acad. Sci. Tr.19, p.288-299, 8pl. 1927	1.00
	DAWSON JW	-- Additional report on erect trees containing animal remains in the coal formation of Nova Scotia. -- R.S. Pr.59, p.362-366, 1896	.50
3	EDINGER TILLY	-- Evolution of the horse brain. -- G.S.A. M.25, 177p., 4pl., 1948	5.00
	GAZIN CL	-- <i>Machaeroides eotheri</i> Matthew, the saber-tooth creodont of the Bridger Eocene. -- U.S.N.M. Pr.96, p.335-347, 2pl., 1946	.75
	GIDLEY JW	-- Paleocene primates of the Fort Union, with discussion of relationships of Eocene primates. -- Ibid. 63, art.1, p.1-38, 5pl., 1923	1.50
	GILMORE CW	-- Osteology of the carnivorous Dinosauria in the United States National Museum, with special reference to the genera <i>Antrodemus</i> (<i>Allosaurus</i>) and <i>Ceratosaurus</i> . -- U.S.N.M. B.110, 159p., 36pl., 1920 ...	9.00
	Not description of <i>Canis lucidus</i> Leidy, a distinct species from Wyoming. -- U.S.N.M. Pr.60, art.13, p.13, 2pl., 1896		
		On a newly mounted skeleton of <i>Diplodocus</i> in the United States National Museum. -- U.S.N.M. Pr.81, art.18, 2lp., 6pl., 1932	1.25
	The detailed skull structure of a great horned dinosaur. -- U.S.N.M. Pr.111, art.1, p.1, 1 pl., 1937		
	GRINNELL GB	-- An old-time bone hunt; an account of the expedition undertaken by Prof. O. C. Marsh in 1870 to the then wild west. -- Nat. Hist. 23, no.4, p.329-336, 1923	1.50
3	MARSH OC	-- The dinosaurs of North America. -- U.S.G.S. A.R.16, pt.1, p.133-414, 83pl., 1896. Part of whole volume, not offered separately	6.50
3	OSBORNE HF	-- Men of the Old Stone Age. -- 559p., 8pl., 275 ill., New York, 1923	2.50
	"	Joseph Leidy, 1823-1891. -- Nat. Acad. Sci., Biogr. Mem. 7, p.335-396, portrait, 1913	1.25
	KELLOGG REMINGTON	3. Fossil marine mammals from the Miocene Calvert Formation of Maryland and Virginia. -- Parts 3,4, p. 65-101, 13 pl., 1966 -- and Parts 5-8, p.103-201, 22pl., 1968 -- are included in the price given for Parts 1,2.	
	LAMBE IM	-- The hadrosaur <i>Edmontosaurus</i> from the Upper Cretaceous of Alberta. -- G.S.C. M.120, 79p., 39ill., 1920	2.50

Received Aug 4, 1977

June, 1971

University of Kansas
Division of Ornithology

Skeletal Specimens

Struthionidae	
Struthio camelus	5
^h Spheiscidae	
Pygoscelis adeliae	3
Spheniscus humboldti	1
Eudyptula albosignata	1
Rheidae	
Pterocnemia pennata	1
Rhea americana	1 +1 body skel. +3 tarsometatarsus
Dromiceidae	
Dromiceus novaehollandiae	1
Dinornithidae	
Pachyornis elephantopus	1 tibiataresus & digits
Tinamidae	
Crypturellus cinnamomeus	4
C. soui	2
Crested Tinamou (Eudromia sp.)	1
Eudromia elegans	1
Tinamus major	1
Casuariidae	
Casuarus bennetti	1 skull only
Gaviidae	
Gavia adamsi	3
G. arctica	2
G. immer	5
G. stellata	4
Podicipedidae	
Colymbus auritus	8
C. caspicus	9
C. dominicus	4
C. grisegena	3
Poliocephalus ruficollis	1
Podilymbus podiceps	17
Aechmophorus occidentalis	6
Diomedidae	
Diomedea exulans	1 skull only
Procellariidae	
Macronectes gigantea	1
Fulmarus glacialis	9 +1 skull only

Procellariidae (cont.)

Puffinus gravis	1
P. griseus	6 +1 skull only
P. tenuirostris	1

Hydrobatidae

Oceanodroma melania	2
---------------------	---

Pelecanidae

Pelecanus erythrorhynchos	16 +1 partial skel.
P. occidentalis	6 +2 skull only

Sulidae

Morus bassanus	1
Sula nebouxi	1
S. sp.	1 skull only

Phalacrocoracidae

Phalacrocorax auritus	11
P. olivaceus	6
P. pelagicus	4
P. penicillatus	8
P. punctatus	1
P. urile	3

Anhingidae

Aninga aninga	8
---------------	---

Fregatidae

Fregata magnificens	4 +2 body skel. +1 skull only
---------------------	----------------------------------

Ardeidae

Ardea cinerea	1
A. herodias	38 +1 part. no skull
Butorides virescens	36 +1 part. no skull
B. striatus	1
Florida caerula	6
Phalacrocorax ibis	6 +1 body skel.
Dichromanassa rufescens	3
Casmerodius albus	5
Leucophoyx thula	22
Hydranassa tricolor	16
Agamia agami	1
Nycticorax nycticorax	37
Nyctanassa violacea	9
Heterocnus mexicanus	4
Ixobrychus exilis	7
Botaurus lentiginosus	21
B. pinnatus	1 no skull

Cochleariidae

Cochlearius cochlearius

5

Scopidae

Scopus umbretta

1

Ciconiidae

Mycteria americana

2

Ibis religiosa

1 skull only

Threskiornithidae

Eudocimus ruber

1 body skel.

E. albus

8

Plegadis mexicana

5

P. falcinellus

1

Ajaja ajaja

5

Phoenicopteridae

Phoenicopus chilensis
P. antiquorum
P. ruber

1
1
3

Anhimidae

Chauna chavaria

1 body skel.

Anatidae

Cygnus columbianus

6 +2 body skel.
+1 keel only

C. buccinator

1

C. olor

2

Chenopsis atrata

1

Plectropterus gambensis

1

Anser caerulescens

2

Chen caerulescens

4

C. hyperborea

5

C. rossi

16

Anser albifrons

3

Philacte canagica

2

Branta bernicla

2

B. canadensis

7

Dendrocygna autumnalis

1

Alopochen aegyptiaca

2

Cairina moschata

1

Anas acuta

38

A. carolinensis

15

A. crecca

1

A. cyanoptera

3

A. discors

18

A. fulvigula

1

A. platyrhynchos

60

A. rubripes

5

A. strepera

5

Mareca americana

9

M. penelope

2

Spatula clypeata

11

Aix sponsa

10

Aythya affinis

25

A. americana

12

A. collaris

5

A. marila

24

A. valisineria

10

Bucephala albeola

6

B. clangula

7

Clangula hyemalis

9

Histrionicus histrionicus

6

Somateria mollissima

2

S. spectabilis

1

Melanitta deglandi

6

M. fusca

2

M. perspicillata

5

Hymenolaimus malacorhynchus

1

+7 body skel.

+1 skull only

Anatidae (cont.)

Polysticta stelleri	1
Oxyura jamaicensis	7
Lophodytes cucullatus	9
Mergus merganser	37 +2 skull only
M. serrator	8

Cathartidae

Vulture gryphus	1 leg +1 clavicle
Sarcoramphus papa	2
Coragyps atratus	16
Cathartes aura	21
C. burrovianus	1

Sagittariidae

Sagittarius serpentarius	3
--------------------------	---

Accipitridae

Chondrohierax uncinatus	1
Ictinia mississippiensis	11
I. plumbea	1
Rostrhamus sociabilis	1
Accipiter cooperii	19
A. gentilis	3
A. nisus	2
A. striatus	12
Buteo albonotatus	1 body skel.
B. albicaudatus	1
B. buteo	2
B. harlani	13
B. jamaicensis	79 +3 body skel.
B. lagopus	41
B. lineatus	3
B. magnirostris	15
B. nitidus	8 +1 skull only
B. platypterus	3 +1 body skel.
B. regalis	98
B. swainsoni	10
Parabuteo unicinctus	4
Leucopternis albigollis	1
Hypomorphnus urubitinga	1
Buteogallus anthracinus	5
Spizaetus japonicus	1
S. tyrannus	1
Aquila chrysaetos	31 +1 skull only +2 body skel.
Haliaeetus leucocephalus	7
Circus cyaneus	59
Geranospiza nigra	2

Pandionidae

Pandion haliaetus	7
-------------------	---

Falconidae

Herpetotheres cachinnans	6
Polyborus cheriway	4
Falco columbarius	4
F. mexicanus	13 +2 body skel.

Falconidae (cont.)

Falco peregrinus	2
F. sparverius	60
F. subbuteo	1
F. tinnunculus	1

Cracidae

Crax rubra	4
Penelope purpurascens	3
Ortalis garrula	1 body skel.
O. vetula	14
O. wagleri	2

Tetraonidae

Lyrurus tetra	1 body skel.
Dendragapus obscurus	1
Lagopus lagopus	4
L. leucurus	2
L. mutus	1
Bonasa umbellus	10
Pedioecetes phasianellus	2
Tympanuchus cupido	14 +1 body skel.
T. pallidicinctus	5
Centrocercus urophasianus	6
Callipepla squamata	10
Lophortyx californicus	10
L. douglasi	5
L. gambelii	7
Philortyx fasciatus	1

Phasianidae

Colinus virginianus	50
Odontophorus guttatus	1 body skel.
Dactylortyx thoracicus	1
Cyrtonyx montezumae	1 body skel.
Alectoris graeca	4
Ferdix perdix	14
Coturnix coturnix	1
Gennaeus nycthemerus	3
Lophura bulwerii	1
Gallus gallus	11 +1 tibiatarsus
Phasianus colchicus	14
Catreus wallichii	1
Symaticus reevesii	3
Chrysolophus pictus	4
C. amherstiae	1
Argusianus argus	2
Pavo cristatus	3

Numididae

Numida meleagris	2 +2 skull only
------------------	-----------------

Meleagrididae

Meleagris domesticus	3 +1 body skel.
M. gallopavo	6 +1 body skel.
Agriocharis ocellata	1

Turnicidae		
Turnix suscitator	2	
Gruidae		
Grus americana	2	+2 body skel.
		+1 humerus
Grus canadensis	6	+1 body skel.
Aramididae		
Aramus guarauna	4	
A. pictus	1	
Rallidae		
Rallus aquaticus	1	
R. elegans	6	
R. limnicola	3	
R. longirostris	10	
Aramides cajanea	1	
Porzana carolina	22	
Laterallus ruber	1	
Coturnicops noveboracensis	1	
Gallinula chloropus	3	
Porphyrio martinica	1	
Porphyrio porphyrio	1	
Fulica americana	24	
F. atra	1	
Heliornithidae		
Heliornis fulica	3	
Otidae		
Neotis cafra	1	
Jacanidae		
Jacana spinosa	9	
Haematopodidae		
Haematopus palliatus	3	+1 body skel.
Charadriidae		
Squatarola squatarola	6	
Pluvialis dominica	17	
Charadrius alexandrinus	11	
C. hiaticula	15	
C. melanotos	7	
C. semipalmatus	2	
C. vociferus	59	
C. wilsonia	19	
Eupoda montana	5	
Scolopacidae		
Bartramia longicauda	20	
Numenius americanus	9	
N. tahitiensis	1	body skel.
Limosa fedoa	4	
L. haemastica	1	
L. lapponica	1	

Scolopacidae (cont.)

Tringa flavipes	54
T. melanoleuca	7
T. solitaria	25
Actitis hypoleucos	1
A. macularia	24
Catoptrophorus semipalmatus	14
Heteroscelus incanum	1
Arenaria interpres	10
Limnodromus griseus	16
L. scolopaceus	47
Capella gallinago	21
Philohela minor	5
Calidris canutus	4
Crocethia alba	13
Ereunetes mauri	50
E. pusillus	83
Erolia alpina	27
E. bairdii	12
E. fuscicollis	14
E. maritima	7
E. melanotos	98
E. minutilla	46
E. ptilocnemis	1
Micropalama himantopus	7
Tryngites subruficollis	1

Recurvirostridae

Himantopus mexicanus	22
Recurvirostra americana	25

Phalaropodidae

Phalaropus fulicarius	15
Steganopus tricolor	6
Lobipes lobatus	20

Thinocoridae

Thinocorus orbignyianus	1
-------------------------	---

Stercorariidae

Catharacta skua	3
Stercorarius longicaudus	4
S. parasiticus	3

Laridae

Larus argentatus	17	+5 skull only
L. atricilla	28	
L. californicus	84	+2 skull only
L. canus	6	+1 body skel.
L. delawarensis	11	
L. glaucescens	2	
L. hyperboreus	2	
L. marinus	3	
L. occidentalis	2	+4 skull only
L. philadelphia	6	
L. pipixican	21	

Laridae (cont.)

Rissa brevirostris	7
R. tridactyla	13
Xema sabini	7
Chlidonias niger	14
Gelochelidon nilotica	4
Hydroprogne caspia	4
Sterna albifrons	21
S. forsteri	8
S. fuscata	5
S. hirundinacea	1
S. hirundo	5
S. paradisaea	9
Thalasseus maximus	15
T. sandwichensis	6
Anous stolidus	1 body skel.

Rynchopidae

Rynchops nigra	9
----------------	---

Alcidae

Plautus alle	1
Alca torda	1
Uria aalge	9
Uria lomvia	18
Cepphus columba	3
Brachyramphus hypoleuca	1
B. marmoratus	3
B. brevirostre	1
Synthliboramphus antiquum	1
Ptychoramphus aleutica	2
Cyclorhynchus psittacula	17
Aethia cristatella	6
A. pusilla	14
Cerorhinca monocerata	1
Fratercula corniculata	12
Lunda cirrhata	8

Columbidae

Treron vernans	2
T. curvirostre	2
Ducula aenea	6
Columba fasciata	8
C. flavirostris	7
C. leucocephala	2
C. livia	6
C. nigrirostris	4
C. speciosa	1
Macropygia phasianella	1
Zenaidura macroura	66
Z. auriculata	2
Zenaida asiatica	19
Z. aurita	1
Streptopelia risoria	1
Geopelia cuneata	1
Scardafella inca	39
Columbigallina passerina	30
C. talpacoti	8

Columbidae (cont.)

Claravis pretiosa	3
Oena capensis	1
Leptotila plumbeiceps	4
L. verreauxi	15
Geotrygon montana	1
Goura cristata	1 body skel.
Didunculus strigirostris	1 body skel.

Psittacidae

Trichoglossus chlorolepidotus	1
T. haematod	1 +1 body skel.
Kakatoe galerita	2
K. roseicapilla	1
K. sanguineus	1 +1 body skel.
Ara macao	1
A. militaris	4
Aratinga astec	12
A. canicularis	10
A. finschi	5
A. holochlora	12
A. pertinax	2
Conuropsis carolinensis	1
Rhynchopsitta pachyrhyncha	1 +3 body skel.
Myiopsitta monachus	1 body skel.
Forpus cyanopygius	1
F. passerinus	1
Brotoogeris jugularis	5
Pionus seniles	2
Amazona albifrons	8
A. amazonica	1
A. autumnalis	3
A. finschi	1
A. leucocephala	1
A. ochrocephala	8
A. viridigenalis	2
Lorius garrulus	1 body skel.
Prioniturus discurus	1
Tanygnathus lucionensis	2
Agapornis sp.	1 body skel.
Platyercus elegans	1
P. zonarius	2 body skel.
Northiella haematogaster	1 body skel.
Melopsittacus undulatus	18

Cuculidae

Cuculus canorus	1
C. fugax	1
Chalcites malayanus	1
Coccyzus americanus	70
C. erythrophthalmus	11
Playa cayana	19
P. minuta	1
Phoenicophaeus curvirostris	1
Crotophaga ani	1
C. major	2
C. sulcirostris	37

Cuculidae (cont.)		
<i>Tapera naevia</i>	3	
<i>Geococcyx californicus</i>	26	
<i>G. velox</i>	2	
<i>Centropus bengalensis</i>	1	
Tytonidae		
<i>Tyto alba</i>	24	+1 skull only +1 body skel.
Strigidae		
<i>Otus asio</i>	48	
<i>Otus cooperi</i>	1	
<i>Bubo virginianus</i>	200	
<i>Nyctea nyctea</i>	5	
<i>Fulsatrix perspicillata</i>	1	
<i>Glaucidium brasilianum</i>	3	
<i>Micrathene whitneyi</i>	1	+1 body skel.
<i>Athene noctura</i>	1	
<i>Speotyto cunicularia</i>	43	
<i>Ciccaba virgata</i>	4	
<i>Strix aluco</i>	1	
<i>S. nebulosa</i>	3	+1 body skel. +1 skull only
<i>S. occidentalis</i>	1	
<i>S. varia</i>	36	
<i>Surnia ulula</i>	1	body skel.
<i>Asio flammeus</i>	31	
<i>Asio otus</i>	32	
<i>Aegolius acadica</i>	5	
<i>A. funerea</i>	1	
Nyctibiidae		
<i>Nyctibius griseus</i>	6	
Caprimulgidae		
<i>Chordeiles acutipennis</i>	18	
<i>C. minor</i>	61	
<i>Nyctidromus albicollis</i>	24	
<i>Phalaenoptilus nuttallii</i>	10	
<i>Caprimulgus carolinensis</i>	5	
<i>C. cayennensis</i>	2	
<i>C. ridgwayi</i>	1	+1 body skel.
<i>C. vociferus</i>	9	
Apodidae		
<i>Streptoprocne semicollaris</i>	2	
<i>Chaetura pelagica</i>	62	
<i>Aeronautes saxatalis</i>	6	
Trochilidae		
<i>Phaethornis longuemareus</i>	3	
<i>P. superciliosus</i>	3	
<i>Campylopterus curvipennis</i>	3	
<i>C. hemileucurus</i>	1	

Trochilidae (cont.)

Florisuga mellivora	1
Anthracothonax nigricollis	2
Orthorhynchus cristatus	1
Chlorostilbon caniverti	1
Cynanthus latirostris	7
Polytmus theresiae	1
Amazilia beryllina	2
A. candida	5
A. cyanocephala	1
A. fimbriata	1
A. leucogaster	1
A. rutila	1
A. tzactl	7
A. violiceps	2
A. yucatanensis	2
Eupherusa eximia	1
Lampornis amethystinus	1
L. clemenciae	4
Lamprolaima rhami	1
Eugenes fulgens	2
Calothorax lucifer	1
Archilochus alexandri	3
A. colubris	15
Calypte costae	2
Stellula calliope	2
Selasphorus platycercus	3
S. rufus	1
S. sasin	4

Coliidae

Colius striatus	1
-----------------	---

Trogonidae

Euptilotus neoxenus	1
Trogon citreolus	9
T. collaris	3
T. elegans	7
T. massena	5
T. melanocephalus	2
T. mexicanus	5
T. violaceus	4
Harpactes diardi	1
H. duvaucelii	1

Alcedinidae

Ceryle alcyon	14
C. torquata	2
Chloroceryle alcyon	4
C. americana	12
Dacelo novaeguineae	1
Alcedo atthis	2
Ceyx rufidorsus	1
Halcyon chloris	3

Momotidae	
Aspatha gularis	1
Electron carinatus	1
Eumomota superciliosa	7
Momotus momota	13
M. mexicanus	6
Meropidae	
Merops apiaster	1
Upupidae	
Upupa epops	1
Bucerotidae	
Aceros undulatus	2
Galbulidae	
Galbula albirostris	1
G. dea	3
G. melanogenia	1
G. ruficauda	1
Bucconidae	
Notharctus macrorhynchos	1
N. tectus	1
Chelidoptera tenebrosa	1
Capitonidae	
Megalaima asiatica	1
M. chrysopogon	2
M. lineata	1
Calorhampus haemocephala	1
C. fuliginosus	2
Ramphastidae	
Aulacorhynchus prasinus	4
Pteroglossus torquatus	5
Ramphastos sulfuratus	13
R. toco	1
Picidae	
Picumnus minutissimus	2
Sasia abnormis	1
Colaptes auratus	59
C. cafer	41
C. chrysoides	3
Celeus castaneus	2
Meiglyptes tukki	1
Picus mentalis	1
P. viridis	1
Dinopium javanense	5
Dryocopus lineatus	9
D. pileatus	10
Asyndesmus lewis	10
Melanerpes aurifrons	53
M. carolinus	38
M. chrysogenys	3

Picidae (cont.)

Melanerpes erythrocephalus	74
M. formicivorus	32
M. hypopolius	4
M. pucherani	5
M. striatus	7
M. uropygialis	20
Sphyrapicus thyroideus	6
S. varius	37
Veniliornis fumigatus	2
V. sanguineus	3
Dendrocopos arizonae	8
D. borealis	3
D. major	2
D. pubescens	93
D. scalaris	16
D. villosus	36
Picoides arcticus	1
P. tridactylus	3
Phloeceastes rubicollis	1
P. guatemalensis	10

Eurylaimidae

Eurystomus orientalis	1
-----------------------	---

Dendrocolaptidae

Dendrocincula fuliginosa	1
Sittasomus griseicapillus	5
Xiphocolaptes promeropirhynchus	2
Dendrocolaptes certhia	1
Xiphorhynchus flavigaster	9
X. pardolosus	1
X. picus	3
Lepidocolaptes affinis	9
L. souleyetii	4

Furnariidae

Synallaxis albescens	1
S. erythrothorax	7
Certhiaxis cinnamomea	1
Philydor erythrocerus	2

Formicariidae

Sakesphorus canadensis	2
Thamnophilus doliatus	1
T. punctatus	1
Thamnomanes caesius	1
Cercomacra tyrannina	1
Hyponemis canator	2
Formicarius analis	2

Cotingidae

Attila cinnamomeus	1
Lipaugus unirufus	1
Pachyramphus major	1
P. polychopterus	2
P. rufus	2

Cotingidae (cont.)

Platypsaris aglaiae	11
Rupicola peruviana	1
Tityra semifasciata	9

Pipridae

Chiroxiphia linearis	9
Pipra mentalis	1

Tyrannidae

Camplostoma imberbe	3
Contopus cinereus	1
C. pertinax	3
C. sordidulus	18
C. virens	27
Elaenia cristata	1
E. flavogaster	1
E. gaimardii	3
Empidonax difficilis	6
E. flaviventris	5
E. fulvifrons	2
E. minimus	17
E. trillii	6
E. virescens	4
Fluvicola pica	3
Inezia subflava	1
Legatus leucophains	1
Megarhynchus pitangua	12
Mitrephanes phaeocercus	4
Muscivora forficata	35
M. tyrannus	3
Myiarchus cinerascens	17
M. crinitus	33
M. ferox	1
M. nuttingi	2
M. tuberculifer	4
M. tyrannulus	12
Myiobius sulphuratus	1
M. sulphuraipygius	1
Myiodynates luteiventris	9
M. maculatus	2
Myiozetes cayanensis	1
M. similis	12
Nuttallornis borealis	5
Phaeomyias murina	4
Pipromorpha oleaginea	2
Pitangus lictor	2
P. sulphuratus	16
Pyrocephalus rubinus	31
Sayornis nigricans	11
S. phoebe	33
S. saya	24
Todirostrum cinereum	3
T. maculatum	3
Tolmomyias flaviventris	2
T. sulfurescens	2

Tyrannidae (cont.)	
Tyrannus crassirostris	3
T. dominicensis	9
T. melancholicus	7
T. tyrannus	52
T. verticalis	55
T. vociferans	28
X lmis irupero	1
Phytotomidae	
Phytotoma rutila	2
Pittidae	
Pitta sordida	5
Alaudidae	
Eremophila alpestris	105
Hirundinidae	
Tachycineta bicolor	29
T. lepida	34
Progne subis	14
Atticora fasciata	2
Stelgidopteryx ruficollis	22
Riparia riparia	25
Hirundo rustica	37
Petrochelidon fulva	8
P. pyrrhonota	49
Dicruridae	
Dicrurus leucophoeus	5
D. hottentotus	2
D. paradisa	1
Oriolidae	
Oriolus chinensis	2
O. xanthonotus	2
Corvidae	
Gymnorhinus cyanocephalus	12
Cyanocitta cristata	84
C. stelleri	39
Aphelocoma coerulescens	12
A. ultramarina	25
A. unicolor	2
Cissoclopha beecheii	2
C. melanocyanea	4
C. yucatanica	6
Cyanocorax dickeyi	1
C. yncas	9
Psilorrhinus morio	18
Calocitta formosa	12
Garrulus glandarius	1
Perisoreus canadensis	45
Pica nuttallii	1
Pica pica	64

Corvidae (cont.)		
Nucifraga columbiana		10
Corvus brachyrhynchos		61
C. caurinus		1
C. corone		1
C. corax		11
C. cryptoleucus		34
C. frugilegus		1
C. imparatus		8
C. ossifragus		4
Cracticidae		
Craticus cassicus		1
Gymnorhina tibicen		2
Grallinidae		
Grallina cyanoleuca		7
Paradisaeidae		
Ptilorus magnifica		1
Paradisae minor		1
Aegithalidae		
Psaltriparus minimus		24
Remizidae		
Auriparus flaviceps		30
Paridae		
Parus atricapillus		100
P. bicolor		78
P. carolinensis		10
P. gambeli		19
P. inornatus		10
P. sclateri		17
P. wollweberi		17
Sittidae		
Sitta canadensis		14
S. carolinensis		40
S. pusilla		3
S. pygmaea		15
Certhiidae		
Certhia familiaris		35
Paradoxornithidae		
Suthora gularis		1
Paradoxornis webbiana		3
Chamaeidae		
Chamaea fasciata		2
Campephagidae		
Coracina striata		2
Hemipus picatus		1

Pycnonotidae

Pycnonotus brunneus	3
P. erythrophthalmus	2
P. jocosae	1
P. goiavier	8
P. plumosus	7
Criniger bres	3
C. ochraceus	1
C. phaeocephalus	3
C. finschi	1
Hypsipetes criniger	3

Irenidae (incl. Chloropseidae)

Chloropsis cyanopogon	1
C. palawanensis	5
Irena puella	1

Cinclidae

Cinclus cinclus	1
C. mexicanus	4

Troglodytidae

Campylorhynchus brunneicapillus	13
C. griseus	1
C. gularis	4
C. jocosus	2
C. megalopterus	1
C. rufinucha	18
C. zonatus	2
Salpinctes mexicanus	7
S. obsoletus	39
Cistothorus palustris	13
C. platensis	9
Thryomanes bewickii	49
Thyrothorus felix	1
T. ludovicianus	40
T. modestus	1
T. rufalbus	1
T. sinaloa	2
Troglodytes aedon	44
T. brunneicollis	1
Hemichornia leucophrys	2
H. leucosticta	1

Mimidae

Dumatella carolinensis	45
Melanotis caerulescens	6
Mimus polyglottos	38
M. triurus	1
Oreoscoptes montanus	10
Toxostoma bendirei	1
T. curvirostra	23
T. dorsale	1
T. longirostre	3
T. rufum	38
Margarops fuscatus	2

Timaliidae

Pellorneum capistratum	1
Trichastoma malaccense	2
Malacopteron cinereum	4
M. magnirostre	7
M. magnum	2
Kenopia striata	1
Stachyris erythroptera	2
S. maculata	1
S. poliocephalus	1
Garralux morrisoniana	1
Liocichla steeri	1
Minla castaniceps	4
Alcippe brunneicauda	4
A. nipalensis	17
Heterophasia auricularis	1
Yuhina brunneiceps	6

Turdidae

Erithacus cyanurus	1
E. johnstoni	1
E. rubecula	1
E. svecica	4
Copsychus malabaricus	2
C. niger	4
C. pyrrhopygus	1
Sialia currucoides	25
S. mexicana	16
S. sialis	55
Myadestes obscurus	3
M. townsendi	11
Oenanthe oenanthe	3
Zoothera citrinus	1
Z. interpres	1
Z. naevius	4
Z. pinicola	1
Catharus aurantiirostris	6
C. fuscescens	9
C. guttatus	21
C. mexicanus	1
C. minimus	15
C. occidentalis	2
C. ustulatus	35
Hylocichla mustelina	16
Turdus albicollis	6
T. grayi	18
T. ignobilis	1
T. leucomelas	1
T. merula	1
T. migratorius	71
T. nigrescens	1
T. nudigenis	2
T. pilaris	1
T. philomelos	3
T. rufopalliatu	1
T. rufitorques	7

Sylviidae	
Gerygone ruficollis	1
Phylloscopus borealis	4
Polioptila albiloris	2
P. caerulea	46
P. melanura	4
Regulidae	
Regulus calendula	42
R. satrapa	26
Muscicapidae	
Culicicapa ceylonensis	1
Hypothymis azurea	3
Muscicapa banyumas	2
M. dumetoria	1
Pachycephala pectoralis	1
P. schlegeli	1
Philentoma velata	1
Rhipidura perlata	3
R. rufiventris	1
Rhinomyias umbratilis	6
Terpsiphone cyanescens	2
Motacillidae	
Anthus spinoletta	30
A. spragueii	5
Motacilla flava	3
Bombycillidae	
Bombycilla cedrorum	25
B. garrulus	7
Ptilogonatidae	
Ptilogonys caudatus	4
P. cinereus	16
Phainopepla nitens	27
P. melanoxantha	1
Laniidae	
Lanius excubitor	1
L. ludovicianus	76
Pityriasis gymnocephala	3
Sturnidae	
Aplonis panayensis	7
Sturnus vulgaris	117
Mino dumontii	1
Gracula religiosa	2
Meliphagidae	
Toxorhamphus novaeguinae	1
Meliphaga sp.	2
M. aruensis	1

Nectariniidae	
Anthreptes rhodolaema	2
Nectarinia hypogrammica	1
Aethopyga shelleyi	2
Arachnothera affinis	4
A. longirostris	11
Dicaeidae	
Melanocharis nigra	1
Prionichilus plateni	1
P. xanthopygius	1
Zosteropidae	
Zosterops fuscicapilla	1
Vireonidae	
Vireo altiloquus	8
V. belli	10
V. flavifrons	7
V. gilvus	56
V. griseus	15
V. huttoni	6
V. olivaceus	45
V. philadelphicus	2
V. solitarius	13
S. vicinior	2
Hylophilus pectoralis	1
Cyclarhidae	
Cyclarhis gujanensis	4
Vireolaniidae	
Vireolanius melitophrys	1 body skel.
Parulidae	
Mniotilta varia	28
Vermivora celata	17
V. peregrina	35
V. pinus	1
V. ruficapilla	13
V. superciliosa	3
Parula americana	11
P. pitiaimi	1
Dendroica auduboni	24
D. caerulescens	3
D. castanea	6
D. cerulea	1
D. coronata	38
D. discolor	7
D. dominica	3
D. fusca	2
D. graciae	3
D. magnolia	11
D. nigrescens	4
D. occidentalis	8
D. palmarum	12
D. pennsylvanica	6
D. petechia	52

Parulidae (cont.)

<i>Dendroica pinus</i>	3
<i>D. striata</i>	22
<i>D. tigrina</i>	9
<i>D. townsendii</i>	3
<i>D. virens</i>	3
<i>Setophaga picta</i>	5
<i>S. ruticilla</i>	24
<i>Seiurus aurocapillus</i>	17
<i>S. motacilla</i>	6
<i>S. novaboracensis</i>	4
<i>Protonotaria citrea</i>	18
<i>Geothlypis agilis</i>	2
<i>G. formosus</i>	17
<i>G. philadelphia</i>	12
<i>G. poliocephala</i>	1
<i>G. tolmei</i>	3
<i>G. trichas</i>	40
<i>Wilsonia canadensis</i>	5
<i>W. citrina</i>	4
<i>W. pusilla</i>	13
<i>Cardellina rubrifrons</i>	2
<i>Ergaticus ruber</i>	5
<i>E. versicolor</i>	4
<i>Myioborus miniatus</i>	6
<i>Euthlypis lacrymosa</i>	3
<i>Basileuterus belli</i>	1
<i>B. culcivorus</i>	5
<i>B. fulvicaudatus</i>	1
<i>B. rufifrons</i>	8
<i>Peucedramus taeniatus</i>	3
<i>Icteria virens</i>	46
<i>Coereba flaveola</i>	2

Icteridae

<i>Gymnostinops montezuma</i>	7
<i>Coccyzus cela</i>	2
<i>C. melanicterus</i>	6
<i>Amblycercus holosericeus</i>	8
<i>Icterus bullockii</i>	28
<i>I. cuculatus</i>	3
<i>I. decumanus</i>	1
<i>I. galbula</i>	66
<i>I. gularis</i>	12
<i>I. graduacauda</i>	6
<i>I. mesomelas</i>	2
<i>I. nigrogularis</i>	3
<i>I. parisorum</i>	8
<i>I. pectoralis</i>	2
<i>I. pustulatus</i>	17
<i>I. spurius</i>	62
<i>I. wagleri</i>	1
<i>Xanthocephalus xanthocephalus</i>	21
<i>Agelaius icterocephalus</i>	2
<i>A. phoeniceus</i>	115

Icteridae (cont.)

<i>Sturnella magna</i>	45
<i>S. neglecta</i>	45
<i>Dives dives</i>	5
<i>Cassidix major</i>	14
<i>C. mexicanus</i>	73
<i>C. nicaraguensis</i>	20
<i>Quiscalus quiscula</i>	51
<i>Euphagus carolinus</i>	12
<i>E. cyanocephalus</i>	26
<i>Molothrus aeneus</i>	18
<i>M. ater</i>	86
<i>Dolichonyx oryzivorus</i>	24

Ploceidae

<i>Vidua chalybeata</i>	2
<i>V. principalla</i>	1
<i>Passer domesticus</i>	∞
<i>P. hispaniolensis</i>	100+
<i>P. montanus</i>	4
<i>Euplectus franciscana</i>	2

Estrildidae

<i>Uraeginthus bengalus</i>	1
<i>U. phoenicotis</i>	1
<i>Lagonosticta caerulea</i>	1
<i>Estrilda cinerea</i>	1
<i>E. erythroneura</i>	1
<i>Amandava melopeia</i>	1
<i>A. subflava</i>	1
<i>A. amandava</i>	4
<i>Poephila castaneotis</i>	8
<i>Lonchura cantans</i>	1
<i>L. ferruginea</i>	3
<i>L. fuscans</i>	2
<i>L. punctulata</i>	1
<i>L. vana</i>	1
<i>Padra oryzivora</i>	1

Fringillinae

<i>Fringilla coelebs</i>	3
--------------------------	---

Carduelinae

<i>Serinus canarius</i>	21
<i>S. butyracea</i>	1
<i>S. musca</i>	1
<i>S. mozambicus</i>	1
<i>Carduelis carduelis</i>	4
<i>C. chloris</i>	1
<i>Acanthis cannabina</i>	4
<i>A. hornemanni</i>	1
<i>A. flammea</i>	17
<i>Spinus pinus</i>	27
<i>S. psaltria</i>	19
<i>S. tristis</i>	77

Carduelinae (cont.)

Leucosticte atrata	12
L. australis	3
L. tephrocotis	25
Pinicola enucleator	20
Carpodacus mexicanus	84
C. purpureus	10
C. cassinii	2
Loxia curvirostra	24
L. leucoptera	5
Pyrrhula pyrrhula	19
Hesperiphona areillei	3
H. vespertina	8
Schistochlamys melanopsis	1

Thraupinae

Chlorospingus ophthalmicus	7
Nemosia pileata	1
Rhodinocichla rosea	2
Habia gutturalis	12
H. rubica	4
Piranga bidentata	6
P. flava	7
P. leucoptera	2
P. ludoviciana	18
P. olivacea	12
P. rubra	33
Ramphocelus carbo	2
R. dimidiatus	1
R. passerinii	2
R. sanguinolentus	3
Thraupis abbas	13
Euphonia affinis	3
E. laeta	4
E. mexicana	1
E. violacea	2
Thraupis palmarum	9
Cyanerpes cyaneus	8
Chlorophonia occipitalis	2

Cardinalinae

Spiza americana	71
Pheucticus chrysopheplus	1
P. ludovicianus	10
P. melanocephalus	55
Cardinalis cardinalis	123
C. sinuata	15
Caryothraustes pollogaster	3
Pitylus grossus	1
Rhodothraupis celaeno	3
Saltator atriceps	8
S. coerulescens	7
Passerina amoena	7
P. caerulea	14
P. ciris	7
P. cyanea	44
P. parvifrons	1
P. versicolor	3

Emberizinae

Emberiza calandra	3
E. cia	4
E. cirrus	4
E. citrinella	1
E. schoeniclus	3
Calcarius lapponicus	100
C. mccownii	2
C. ornatus	3
C. pictus	11
Plectrophenax nivalis	8
Calamospiza melancorys	28
Zonotrichia albicollis	32
Z. atricapilla	4
Z. capensis	2
Z. coronata	7
Z. georgiana	24
Z. iliaca	36
Z. lincolni	51
Z. leucophrys	53
Z. melodia	91
Z. querula	81
Junco aikenii	2
J. caniceps	25
J. hyemalis	56
J. oreganus	33
J. phaeonotus	38
J. vulcani	4
Ammodramus caudacuta	5
A. henslowii	5
A. lecontei	26
A. maritima	11
A. princeps	1
A. sandwichensis	91
A. savannarum	33
Spizella arborea	90
S. breweri	13
S. pallida	16
S. passerina	49
S. pusilla	64
Poocetes gramineus	45
Chondestes grammacus	71
Amphispiza belli	3
A. bilineata	22
Aimophila aestivalis	5
A. botteri	3
A. carpalis	2
A. cassinii	16
A. rufescens	14
A. ruficeps	13
A. ruficauda	1
Oriturus superciliosus	7
Poospiza torquata	1
Sicalis flaveola	2
Volatinia jacarina	13
Sporophila aurita	1
S. minuta	3
S. torqueola	12

Emberizinae (cont.)

Oryzoborus funereus	1
Tiaris bicolor	1
T. olivacea	2
Pipilo aberti	5
P. chlorura	15
P. erythrophthalmus	57
P. fuscus	40
Melospiza kieneri	3
Arremon aurantirostris	1
Arremonops conirostris	2
A. rufivirgatus	14
Atlapetes brunneinucha	6
A. pileatus	3

Fossil Birds since 1933 from Wetmore's paper:
(only those which I had not listed elsewhere)

- Pelecampus crispus palaeocrispus* Serebrovsky, Compt. Rend Acad. Sci. Moscow, vol. 33, 1941, p. 472. Plio., near Baku, Azerbaijan.
- Cygnus olor bergmanni* Serebrovsky, Compt. Rend. Acad. Sci. Moscow, vol. 33, 1941, p. 472. Pleisto., Baku, Azerbaijan
- Anser azerbaijanicus* Serebrovsky, Compt. Rend. Acad. Sci. Moscow, vol. 33, 1941, p. 766, Pleisto., Baku, Azerbaijan
- Geochen rhuax* Wetmore, Condor, vol. 43, no. 4, July 23, 1943, p. 146, fig. 39. Pahala formation (probably), prehistoric period of Recent (possibly several thousand years old. Mt. Kaumaikehu, above Pahala, Is. of Hawaii.
- Anas oligocaenica* Tugarinov, Compt. Rend. Acad. Sci. Moscow, vol. 26, 1940, p. 307. Oligocene, near Lake Aral.
- Anas platyrhynchos palaeoboschas* Serebrovsky, Compt. Rend. Acad. Sci. Moscow, vol. 33, 1941, p. 471. Pleisto. near Baku, Azerbaijan.
- Archaeoquerquedula lambrechtii* Spillmann, Proc. Eighth Amer. Sci. Congr., vol. 4, Sept. 3, 1943, p. 387, fig. 9, Pleisto. Peninsula of Santa Elena, Ecuador.
- Eocathartes robustus* Lambrecht, Nova Acta Leopoldina, vol. 3, no. 14, 1935, p. 362, pl. 1, fig. 2. Lutetian beds of the Middle Eocene, Cecilie Mine, Munchen in Geiseltal, Merseburg, Halle, Germany.
- Buteo fluviaticus* A.H. Miller and C.G. Sibley, Condor, vol. 44, no. 1 Jan. 15, 1942, p. 39, fig. 12. Oreodon beds of Mid. Oligocene, on Owl Creek, 6 miles east of Carr, Weld County, Colo.
- Calohierax quadratus* Wetmore, Bull. Mus. Comp. Zool., vol. 80, no. 12, Oct. 1937, p. 429, figs. 1-3. Prehistoric cave deps. on Great Exuma Island, Bahama Islands.
- Titanohierax gloveralleni* Wetmore, same data as above, p. 431
- Phasianus nicheti* Gaillard, in Bastin, Bull. Soc. Hist. Nat. Ardennes, vol. 28, 1933, p. Pleisto., Ardenne, France
- Pliogallus coturnoides* Tugarinov, Compt. Rend. Acad. Sci. Moscow, vol. 26, 1940, p. 205. Plio. near Odessa, Ukraine.
- Sarcogeranus bogatshevi* Serebrovsky, Compt. Rend. Acad. Sci. Moscow, vol. 27, 1940, p. 767. Pleist. near Baku, Azerbaijan.
- Palaeogrus geiseltalensis* Lambrecht, Nova Acta Leopoldina, vol. 3, no. 14, 1935, p. 361, pl. 1, fig. 1. Lutetian beds of Mid. Eoc., Cecilie Mine, Munchen an Geiseltal, Merseburg, Halle, Germany.
- Andrewsornis abootti* Patterson, Field Mus. Nat. Hist. Geol. Ser., vol. 8 no. 8, Oct. 31, 1941, p. 50, fig. 16. Deseado form, Oligo. Cabeza Blanca, Chubut, Argentina.
- Phororhacos rapax* (Kraglievitsh), Mesembriornis rapax Kraglievitsh, An. Soc. Cient. Argentina, vol. 142, p. 3, Sept. 1945, p. 108, figs. 2-9. Chapadmal form, Mid. Plio. near mouth of Arroyo Loberia, Provincia de Buenos Aires, Argentina.

Cunampaia simplex Rusconi, Bol. Paleont. Buenos Aires, no. 21, May 2, 1946, (p.1), fig. 1. Atala form. Oligo., 500 meters w of Mina Atala, Las Heras, Mendoza, Argentina. (New family, between Phororhacidae and Bathornithidae -- Cunampaididae.)

Rhegminornis calobates Wetmore, Proc. New England Zool. Club, vol. 22, June 23, 1943, p. 61, pl. 11, figs. 1-5. Hawthorne form. Low. Mio. on Thomas farm, 8 miles north of Bell, Gilchrist Co., Fla. new family in the Charadriiformes, Rhegminorthithidae.

Machetes (Tringa?) binagadensis Serebrovsky, Compt. Rend. Acad. Sci., Moscou, vol. 27, 1940, p. 767. Pleisto. near Baku, Azerbaijan. (in the Scolopacidae.)

Ara autocthonos Wetmore, Jour. Agr. Univ. Puerto Rico, vol. 21 Jan. 1937 p. 12, pl. 1, figs. 8-9/ Prehistoric kitchen middens SW St. Croix, Virgin Islands, West Indies.

Protoconurus roosevelti Spillmann, Proc. Eight. Amer. Sci. Congr. vol. 4, Sept. 3, 1942, p. 381, figs. 1-9 Pleisto. Peninsula Santa Elena, Ecuador. (Psittacidae)

Tyto pollen Wetmore, Bull. Mus. Comp. Zool. vol. 80, Oct. 1937, p. 456 fig. 10-14. Prehistoric cave deps. Great Exuma Island, Bahamas.

Asio pygmaea Serebrovsky, Compt. Rend. Acad. Sci. Moscou, vol. 33, 1941, p. 476. Plio., Odessa, Ukraine.

Geiseloceros robustus Lambrecht, Nova Acta Leopoldina, vol. 3, no. 14, 1935, p. 365, pl. 2. Lutetian beds Mid. Eoc. Cecilie Mine, Muehlen in Geiseltal, Merseburg, Halle, Germany. (Family Bucerotidae)

Megalapteryx benhami Archey, Bull. Auckland Inst. Mus. no. 1, May 29, 1941, p. 35. ~~Recent~~ Recent (prehistoric) deposits in a cave on Mt. Arthur table-land, Nelson, So. Is. N.Z.

Pachyornis mappeni Archey, same pub. as above but from prehistoric cave at Mangataiki, Nis. N.Z. Last 2 oare Family Anomalopterygidae

Pliocarbo longipes Tugarinov. Pliocene, Ukraine.

Agnopterus turgaiensis Tugarinov. Oligo. Kazakh.

Aythya marila asphaltica Serebrovsky. Pleisto. Azerbaijan.

Alectoris pliocaenica Tugarinov. Pliocene. Ukraine.

Ammoperdix ponticus Tugarinov. (sic) Pliocene. Ukraine.

Chlamydotis pliodeserti Serebrovsky. Pliocene. Ukraine.

Avian Paleo papers since 1938 (related subject)

Orr, Robert T.

1940. Another record of *Puffinus diatomicus*. Auk, 57:105 (Jan.)

6th known specimen recorded of *P. diatomicus*, coll'd 1938 by G. Dallas Hanna from Lompoc Miocene. In coll. at Acad. in S.F. Differs in measurements from previous records: Length of ulna 72mm. (as compared with 75, 76, 79) 2nd phalangeal element, 24 mm. (instead of 21) foot 48 mm. (instead of 53). Other measurements found to agree closely with earlier-taken specimens. Orr believes these differences are within range of indiv. and age variation.

Patterson, Bryan

1941. A new phororacoid bird from the Deaseado Formation of Patagonia. Geol. Ser. of Field Mus. of Nat. Hist., 8: 49-54, fig. 16. (Oct.)

Marshall Field Paleontological Expeditions led by Riggs made fine collection of phororacoid birds. *Mesembriornis* and *Procarium* especially fine individual specimens (Pliocene). Examined all phororacoid material while making this study except that in So. Amer. museums, but had casts of many. None from Ameghino coll., however. Therefore this a preliminary paper, only

Gruiformes, suborder Cariamae, Superfamily Phororacoidae, family Phororacidae

Andrewsornis abbotti, n. gen and sp. -- type inc. skull, mandibles, prox. end coracoid, phalanges of digit II. First record of Phororacoid from the Deaseado. Thinks there are 3 families Phororacidae, Psilopteridae, and Brontornithidae, ~~but none of these are referable to this area which had~~ been erroneously referred elsewhere.

Reviews characters of other forms from the Deaseado described by Ameghino.

Sternberg, R.M.

1940. A toothless bird from the Cretaceous of Alberta. Jour. Paleon., 14:81-85, 6 text figs. (Jan.)

Lower jaw from the Steeveville area of Alberta which is world-famous for dinosaur remains (Cretaceous). Coll'd in 1936 by C.M. Sternberg. Type in Geol. Surv. Canada, Up. Cret. Called *Caenagnathus collinsi*, length of mandible approximately 225 mm. (meas. on illus.) Classified: Class Aves; Subclass Neornithes; order Caenagnathiformes; Family Caenagnathidae; (Underlined portions are new)

Galbreath, Edwin C.

1944. *Grus canadensis* from the Pleistocene of Illinois. Condor, 46:35. Pleistocene gravels near Ashmore, ~~Elbas~~ Coles Co., Ill. post-Shelbyville in age. Alluvial gravel overlaid by black earth. Recent forms found in black earth. Wild Turkey, *Melagris gallopavo* also found in gravels, and extinct forms (probably mammals) (See Galbreath, Geol. Ser. Field Mus. 6: 303-313, 1938). Present specimen distal end of radius of Little Brown Crane. Specimen now at Field Mus.

Archey, Gilbert

1941. The Moa: a study of the Dinornithiformes. Bull. Auckland Instit. and Mus. no. 1:119pp., 15 pls., 9 tables. Reviewed by DM.A.Bate in Nature vol. 148, p. 701, Dec. 1941.

Archey finds parallelism in one division of the moas. 2 subfamilies with widely differing skulls, sterna, and phalanges, have developed identical types of short, heavy leg bones (p. 8). Separates the moas into 2 natural divisions: 1. Tall Dinornithidae with flat, broad skulls and normal number of phalanges. 2. all the others including many genera and species. Careful generic and specific diagnoses given. Vegetarians, dwelling in open scrub and grassland. Believes Dinornis cannot have exceeded a normal walking height of 10 feet (previously said to be 15). Only touches on phylogeny of moas, inclining to loss of flight through degeneracy (Percy Lowe, notwithstanding). Believes moas exterminated by earliest Polynesian immigrants, first on North Island and later in the South, and probably before the arrival of the immediate ancestors of the present Maori tribes in the Fleet migration of 600 yrs. ago (p. 600)

Fisher, Harvey I.

1945. Flying ability and the anterior intermuscular line on the coracoid. Auk, 62: 125-129, fig. 1.

Finds no correlation between position of anterior intermuscular line of coracoid and any type of flight, size or phylogenetic position. No correlation between related genera of Cathartidae, or among species of Falco or Accipiter. No correlation ~~between~~ with soaring or swift, flapping flight (note dissimilarity between Pelecanus and Niomedea).

Compton, Lawrence V.

1938. The pterylosis of the Falconiformes with special attention to the taxonomic position of the osprey. Univ. Calif. Publ. Zool., 42:173-212, 17 figs.

Within the Falconiformes the arrangement of the feather tracts supplies characters of definite taxonomic value. Using these the order can be divided into three natural groups. Secretary bird may represent a 4th group: Accipitrid type, falconid type, Cathartid type. Pandion is grouped with the cathartids, and he believes should be a family under the suborder Cathartae.

Patterson, Bryan.

1941. Museum restores giant fossil bird that terrorized large mammals. Field Museum News, ~~12(3):1-2~~ 12(3):1-2.

Mounted skeleton installed at Field Museum, based on 2 specimens from Pliocene deposits of Province of Catamarca, Argentina coll'd by 2nd Marshall Field Expedition to Argentina and Bolivia, led by Riggs. Describes Mesembriornis as carnivorous terrestrial, ~~4~~ 5 ft. high, flightless runner. Huge head and enormous beak, powerful feet and claws. Also reviews the 3 families of Phororhacids: Phororhacidae (Mesembriornis) and Psilopteridae and Brontornithidae, 2nd family like phororhacids but only 3 ft high, the brontornithids were 8 ft. and more, shorter lower leg than others.. All families found from Oligocene to Pliocene. Earliest forms as specialized as the later. All So. Amer. Dev'd due to isolation of S. Am up to Pliocene.

DeMay, Ida S.

1941. Quaternary bird life of the McKittrick Asphalt, California. Carnegie Institution of Washington, Publ. 530:35-60, 4 figs.

McKittrick coll. at Calif. Inst. Tech. identified. Species same as heretofore reported. Young quail, doves and road runners present -- indication of open country with chaparral covered hillsides. No Parapavo. Compared with other asphalt deposits is between Pit 10 and La Brea pit 3 in extinct species, no. of condor and eagle bones and no. of small raptore bones, more closely approaching Pit 10 than McKittrick no. 2 collection. 16,000 bones, 2150 indivs. at C.I.T.

DeMay Ida S.

1941. Pleistocene bird life of the Carpinteria asphalt, California. Carnegie Inst. Wash. Publ, 530: ~~61-76~~ 61-76. (July), 4 figs.

Survey of C.I.T. birds from Carpinteria. Also includes birds at Santa Barbara Museum and Univ. Calif. L.A. 2400 bones representing 351 individuals. No new species erected. Compared with Pit 10 and other RLB, Carpinteria is between Pit ~~10 and 3~~ 3 and 4 in extinct individuals, between 10 and 3 in no. of large and small raptores. Birds show forested conditions -- refers to Monterey habitat.

Edinger, Tilly, 1942.

1942. The pituitary body in giant animals fossil and living: a survey and a suggestion. Quaterly Review of Biol., 17: (1);31-45.

The ratites are discussed particularly among the birds.

Wiman, C. and Tilly Edinger

~~1941~~ Sur les cranes at les encephales d'Aepyornis et de Mullerornis
1941 Bull. de L'Acad. Malgache, 24:50 pp., 6 pls., 10 text figs.
(Printed 1942)

Schaub, S.

1940. Ein Ratitenbecken aus dem Böhnerz von Egerkingen. Bericht der Schweiz. Palaon. Gesellschaft, Eclogae geol. Helv., 33 (2):274-284, 4 text figs.

Describes Eleutherornis helveticus, new gen. and sp. from the Eocene of Egerkingen. 1st evidence of Eocene ~~ratites~~ Riesenvogel. Specimen a partial pelvis. *Related to Struthioidea but suggests carinates ancestry*

Wiman, C.

1938. Etude sur le segment terminal de l'aile des Aepyornis et des Mullerornis. Extrait du Bull. Acad. Malgache, 20:1-5, 2 pls., 2 text figs. (Printed 1938)

Wiman, C.

1942. Uber den tarsometatarsus der alca impennis L. Goteborgs Kungl. Vetenskaps- och Vitterhets-Samhalles Handlingar; Sjatte Foljden. Ser. B, vol. 1 (15), 1-12, 4 text figs.

Discusses tarsal proportions in Great Auk, penguins and (briefly) "Papageien, and Eulen".

DeMay

Edinger

✓
Eocene
giant bird

Wiman, C.

1941. Über den Eis-Sturmvogel (*Fulmarus glacialis* L.). Natur und Volk, 71: 455-461, 5 figs. (not fossil).

Wiman, C., and I. Hessland

1942. On the Garfowl, *Alca impennis* L. and the sternum of birds. Nova Acta Regiae Societatis Scientiarum Upsaliensis, ser. 4, 13(2)28 pp., 1 pl. 14 text figs.

Discusses Swedish and Norwegian finds of auk bones. Never found in some age deposits on the Baltic coast.
Measurements of Auk bones: humerus 95-115 (quoting Blanc)mm.,

Miller, Alden H. and Lawrence V. Compton

1939. Two fossil birds from the lower Miocene of South Dakota. Condor, 41:153-156, 1 fig.

Describes *Paranyroca magna* (of new family Paranyrocidae), no. gen. and sp. Type tarsus the size of a swan but with only 2 calcaneal ridges well developed. (Note, this looks something like the vultures).

Describes *Palaeoborus rosatus*, n. sp. Type distal end of ulna. Possibly relates to *Neogyps* instead of *Palaeoborus*.

Miller, Alden H. and Charles G. Sibley

1941. A Miocene gull from Nebraska. Auk, 58:563-566, 1 fig.

Distal end of left humerus coll'd by UConn 1933 from Niobrara River Zone, Cherry County Nebraska, Upper Miocene.

Describes *Gaviota niobrara*, new gen. and sp. Size of *Larus hyperboreus*, but different in char. Mentions certain similarities to the scolopacids. More chars. like the larids. Suggest that *Gaviota* has chars. of both groups and may indicate divergence since Miocene. (What about the Eocene larids?)

State that 4 larids described by Milne-Edward from the Oligocene of Europe are closer to the Scolopacidae than the laridae. Good analysis, probably the larids did come off later than would appear in Lambrecht.

Miller, Alden H.

1944. An avifauna from the Lower Miocene of South Dakota. Univ. Calif. Publ. Bull. Dept. Geol. Scis., 27:85-100, 8 figs.

10 forms from Flint Hill of So. Dakota.

✓ *Megapaloelodus connectens*, n. gen. and sp. of Phoenicopteridae. Distal end right tarsometatarsus. 1st Flamingo of Tertiary N. Amer. (abundant in Up. Oligo France). Femur referred.

✓ *Paranyroca magna* already described (see above)

✓ *Dendrochen robusta*, n. gen. and sp. of Dendrocygninae. Humerus. Also 2 tibiae and a carpus.

✓ *Querquedula integra*, n. sp. Coracoid. Probably n. gen. Ulna ref.

✓ *Palaeoborus rosatus*, described before (see above)

✓ *Ortalis pollicaris*, n. sp. of Ardeidae. Carpus.

✓ *Tympanuchus stirtoni*, s. sp. of Tetraonidae, tarsus

✓ *Miortyx teres*, n. gen. and sp. of Phasianidae. Humerus. Tib. ref.

✓ *Strix dakota*, n. sp. of Strigidae, tarsus.

Wetmore, A.

1940. Avian remains from the Pleistocene of Central Java. Journ. Paleon., 14:447-450, 7 figs. (sept.)

Plen

From Trinil beds, middle Pleistocene known from Pithecanthropus remains.

Leptoptilos titan, n. sp. Tarsus. (Length 372 mm, br. prox. 33.3 mm. br. sh. 12.3 mm.) (Largest modern Leptoptilos, L. dubius, length tarsus 262 to 329.

Aegyptiinae, sp.? ulna and radius frags. about size of Pseudogyps bengalensis. Probably extinct.

Grus grus. Humerus. Like modern one tho modern one has no records from Java.

1941. An unknown loon from the Miocene fossil beds of Maryland. Auk, 58:567 (Oct.).

X Mio ✓

Right tibia found on shore of Chesapeake Bay in Calvert formation of the Miocene. Smaller than modern Gavia immer but differing in conformation. First record from Miocene of N. Amer.

1942. Two new fossil birds from the Oligocene of South Dakota. Smithson. Misc. Coll., 101(14):1-6, 13 figs.

Oligocene deposits of Washington County, So. Dakota.

- X Olig ✓
✓ Gnotornis aramiellus, n. gen. and sp. of Limpkin (family Aramidæ Dist. humerus.
✓ Bathornis geographicus, s. sp. of Bathornithidae. Tarsus. Probably direct descendant of Bathornis veredus from Hadron Oligocene (earlier) of Colorado. Also tibia
✓ Other Bathornis sp. are B. ceteripes from Torrington, Wyo., B. cursor, same place

- X Pter ✓
X Olig ✓
X Mio ✓
1940. Fossil bird remains from tertiary deposits in the U.S. Journ. Morph., 66:25-37. Describes Gavia concinna (ulna); of assigns Shufeldt's G. pusilla to n. gen. Gaviella (now thot to be White River Oligocene). Describes Badistornis arams from White River Oligocene (a limpkin). Miocapophus meclungimio. Maryland
1943. Fossil birds from the tertiary deposits of Florida. Proc. New England Zool. Club, 22:59-68, pls. 11 and 12 and 2 text figs.

Lower Miocene in Gilchrist Co. Fla. (Raeford Thomas farm)

- X Mio ✓
✓ Rhegminornis calobates n. gen and sp. of n. family Rhegminornithidae, of the order Charadriiformes.

Belongs in superfamily Charadriioidea, nearest the Jacanoidea.

- ✓ Columbid, sp.. Related to the Ground Doves? Coracoid
✓ Compsothlypidae, near Icteria. Tibia.

Middle Miocene from the phosphate diggings near Pierce, Fla.

- X Mio ✓
✓ Gavia palaeodytes, n. sp. of Gaviidae. Coracoid. Size of Pintail Duck, and smaller than any known loon.
✓ Diomedea anglica (described from Up. Plioc. of England by Lydekker).
✓ Phalacrocorax auritus. 2 tarsi. I DOUBT THIS!!!

Wetmore, A.

1943. Remains of a swan from the Miocene of Arizona.
Condor, 45:p-120. (June)

near Wickiup P. O., Mohave Co., Ariz. Prox. end coracoid.
Definitely swan but too badly damaged to identify (size of Trumpeter). Earliest record of swan in N.A.M.

1943. An extinct goose from the island of Hawaii. Condor, 45:146-148, fig. 39, July

Beneath 75 or 80 ft. of lava. May be Recent.
Geochen rhuax, n. gen. and sp. Tibia. Also 2 femora, pelvis, frag. of coracoid and misc. rfrags,. Size of Cape Barren Goose of south Australia, and most like it than any other goose. Place in subfamily Cereopsinae.

1943. Two more fossil hawks from the Miocene of Nebraska.
Condor, 45:229-231. (Nov.)

Stonehouse Draw Quarry, 18 mi. so of Agate, Neb. Mid. Mio.
Neophrontops vetustus, n. sp. Humerus

Stenomylus Quarry near Agate, Lower Mio.

Palaeastur atavus, n. gen and sp. of hawk. Dist. tarsus.
spiniid Affinities with Leucopternis and Spizaetus, as well as Spizastur. Oldest of its group of genera.

1943. The occurrence of a feather impressions in the Miocene deposits of Maryland. Auk, 60:440-441 (July.)

Feathers found in a coprolite from the western shore of Chesapeake Bay. Appear to be of aquatic birds. Possibly the coprolite is from a large fish or crocodile, both of which occur in the deposits.

1943. A second specimen of the fossil Guillemot, Miocepheus.
Auk, 60:604 (Oct.)

Humerus of Miocepheus meclungi somewhat more slender than the type (also a humerus). Measurements of new find: total length, 60.1mm., gr. brd. of sha near center, 4.8; least ap.sha. near center, 3.01 br across dist. condyles, 8.9. (Originally described Jour. Morph., 66:35, Jan., 1940. *Middle*)

1944. Remains of birds from the Rexroad fauna of the Upper Pliocene of Kansas. Univ. of Kansas Sci. Bull., 33:89-105 (May 15)

Nettion bunkerii, sp. nov. Carpometacarpus.

Colinus hibbardi, n. sp. Phasianidae, tarsus dist. and hum.

Rallus prenticei, n. sp. Humerus. and cora, tarsus, tibia and 12 other forms ~~xxxxxx~~, 4 of which are mod.

1944. A new terrestrial vulture from the Upper Eocene Deposits of Wyoming. Annals of Carnegie Mus., 30:57-69 (May 24)

Eocathartes grillator, n. gen and sp., suborder Cathartae.
Part skeleton in matrix. N. family

(4)

Miller, Loye

1940. A new Pleistocene turkey from Mexico. Condor, 42:154-156,
2 figs. From San Josecito Cave, Nuevo Leon, Mexico

Description of Meleagris crassipes, n. sp. tarsus small, stocky

1942. Two new bird genera from the Pleistocene of Mexico. Univ.
Calif. Publ. Zool., 47:43-46, 1 fig.

San Josecito Cave.

Epirallus natator, n. gen and sp. Tarsus. closest to Aramides
and Rallus, but narrower foot.

Palnumenius victima, n. gen and sp. tarsus. Near Numenius and
Limosa, closer to curlews.

1942. Succession in the cathartine dynasty. Condor 44:212-213,
1 fig.

1943. The Pleistocene birds of San Josecito Cave, Mexico. Univ.
Calif. Publ. Zool., 47:143-168.

43 plus species of which 12 are extinct. None here described.
Compares with La Brea.

1944. A Pliocene flamingo from Mexico. Wilson Bull., 56:77-82,
2 figs.

- ✓ Phoenicopterus stocki, n. sp. from Rincon Pliocene of Chi-
huahua, Mexico. Tibia. Also humerus. Discussion of Amer.
flamingoes. Only 2 fossil records, Pleistocene of Oregon
and this Plio of Mexico. Believes the family to have been
a late arrival in America. (see Alan's record of Myapalaeobus pumilus 1944)

1944. Some Pliocene birds from Oregon and Idaho. Condor, 46:
25-32, 1 fig.

- ✓ Dry Creek Oregon: Pelecanus erythrorhynchos? (3 femora);
✓ Phalacrocorax auritus (hum. and coracoid); ✓ Cygnus sp. (2 scap);
✓ Branta dickeyi (9); and indeterminate goose, eagle, and sp.?

- ✓ Snake River, Idaho, 13 miles NW Grandview: Grus americana
(Tibia);

Snake River, Idaho on Barbour Ranch: ✓ Ciconia maltha (5);

- ✓ Cygnus sp.; and indeterminate goose and bird.

1946. The Lucas Auk appears again. Condor, 48:32-36, fig. 3.
~~Complete~~ Complete humerus of Mancalla californiensis from
San Diego reveals similarities of adaptation to penguins.

1942. With Ida S. DeMay. The Fossil Birds of California.
Univ. Calif. Publ. Zool., 47: 47-142.
List of birds and bibliography.

Lowe, P. R.

1944. An analysis of the characters of Archaeopteryx and Archeornis
Were they reptiles or birds? Ibis, Oct., 1944:517-543, illus.
Believes they were reptiles with feathers; that nature made
more than one attempt at feathers, the birds were the only
attempt which succeeded.

also see
Wilson Bull. 58(2):104-110, 11/71
Supplementary notes on the family Anatidae
Delacour, Jean, and Ernst Mayr.

1945. The family Anatidae. Wilson Bull, 57:3-55, frontis. and 24 figs.

Revision of classification of the Anatidae with section dealing with evolution. Chart shows common origin with Phoenicopteri and Anhimae. Some genera of primitive or aberrant type restricted to Australia. May indicate great age of the family.

Mayr, Ernst

1946. History of the North American bird fauna. Wilson Bull., 58:3-41, frontis. and 4 figs.

Good thoughts on evolution and distribution.

Mayr, Ernst

1942. Systematics and the Origin of Species. Columbia Univ. Press, New York.

Colbert, Edwin H., Raymond B. Cowles, and Chas. M. Bogert

1946. Temperature tolerances in the American alligator and their bearing on the habits, evolution, and extinction of the dinosaurs. Bull. Amer. Mus. Nat. Hist., 86*331-373, 14 figs. Ideas are here suggested which might be applicable to the origin of birds.

Simpson, G.G.

1944. Tempo and Mode in Evolution. Columbia Univ. Press, New York
Suggests ideas of statistical calculation of evolutionary processes which may be applicable to birds (viz. trinomial use)

Schaub, Samuel

1945. Bemerkungen zum Typus von Taoperdix keltica Eastman.
~~Bericht-Schweizerischen-Palaen-Gesell.~~ Eclogae geologicae Helvetia, 38 (2):616-621, 1 pl., and 1 text fig.

Believes this fossil from the Oligocene of Armissan (France? or Switzerland?) not to belong with the Odontophoridae but to be better placed with Paleortyx.

Mayr, Ernst and Martin Moynihan

1946. Evolution in the Rhipidura rufifrons group. Amer. Mus. Nov. no. 1321, June 6, 1946:21 pp. 6 figs.

Use of systematics to demonstrate evolution of groups. Particularly good in island birds. ~~May~~ Archipelago well suited for such study -- thousands of islands and different climatic belts. Cases of "active evolution." The R. rufifrons group (Fantails) selected as one which demonstrates this. Mayr does not believe that intergradation is an essential for subspecies -- speaks of the intergraders as of the "old school."

Miller, Alden H.

1947. A new genus of icterid from Rancho La Brea. Condor, 49: 22-24, fig. 4.

Described Pandanaris convexa, n. gen. and sp. from Pit A Rancho La Brea. Related to Tangavius and Molothrus. Beak type, lower mandible referred.

5

Fisher, Harvey I. (see also p. 1a for Fisher)

1944. The skulls of the Cathartid vultures. Condor, 46:272-296, figs. 42-47.

Puts La Brea *Gymnogyps* with the cave form as *G. amplus* based on skull characters. Surveys the fossil cathartids, making some decisions with which I don't agree.

1945. Locomotion in the fossil vulture *Teratornis*. Amer. Midland Naturalist, 33 (3): 725-742, 1 fig.

Believes Terry adapted for flapping flight but slow flapping. Legs show a graviportal type of locomotion -- awkward in terrestrial movement.

1946. Adaptations and comparative anatomy of the locomotor apparatus of new world vultures. Amer. Midland Naturalist, 35 (3): 545-727, 13 pls. 28 text figs.

Not paleontological but extremely helpful to any student of osteology and interpretation of muscle attachments on bones.

1947. The skeletons of Recent and fossil *Gymnogyps*. Pacific Science, 1 (4): 227-236.

Statistical studies of *G. californianus* and *G. amplus* demonstrate aht "we are dealing with two distinct forms." Does not say however that these two forms are separate species, tho the inference is there. Finds it impossible to separate the two on basis of qualitative characters of skeleton except skull. Finds means to be different. *G. amplus* no more variable than modern *G. calif.*

Howard, Hildegarde

1939. A Prehistoric record of Holboell Grebe in Nevada, Condor, 41:32 etc. 3 in 1939 (including the one above); 1 in 1940; 2 in 1942; 3 in 1944; 2 in 1945; 1 in 1946; 4 in 1947. A couple of others not pertaining to Palaeornithology.

Miller, Loye

1941 The passing of *Coragyps shastensis* Miller. Condor, 43:140-141. This species from the Calif. cave deposits put with *C. occidentalis* of RLB.

~~Miller~~ Sibley, Charles

1939. Fossil fringillids from RLB. Condor, 41:126-127. (May)

Identifies the following passerines from RLB from UC. colls. *Spinus pinus*, *S. tristis*, *Amphispiza bilineata*, *A. belli*, *Spizella cf passerina*.

Simpson, G.G.

1946. Fossil penguins. Bull. Amer. Mus. Nat. Hist., 87(1):1-99, 33 figs. Believes penguins to have been volant swimmers losing flight after having taken to water. Disagrees with Lowe. Hind limb shows change from Miocene to Recent.

In addenda takes exception to Lowe's theory about Archeopteryx. He calls them birds though naturally admitting them to be a link. Believes Archeopteryx indicates that early birds were flyers not terrestrial (as Lowe says) Lowe tries to say all birds first terrestrial and ostrich group came then, flying afterward.

1941. Range as a zoological character. Amer. Jour. Sci., 239:785-804
See p. 4a for another simpson ref.

new
Lowe, P.R.

1939. Some additional notes on Miocene penguins in relation to their origin and systematics. Ibis, ser. 14, vol. 3:281-294.

1944a. Some additional remarks on the phylogeny of the Struthioness. Ibis, 86:37-43.

1944b. see p. 4 of this list. All articles suggest that penguins and ratites never flew and that Archeornis-Archeopteryx were feathered reptiles.

Stegemann, B. Ueber die Flugelhaltung von Archaeornis in der Ruhe-

1937. stellung. Ornith Monatsber., 45:192-195, 2 text figs. (Dec)
From a study of hand and wing bones in Archaeornis, he concludes that the wing when at rest could not have been folded with the hand turned backward, but must have taken a more lacertilian position, with the palm directed more or less anteriorly (review quoted from Auk, 55:581)

Troxell, E.

1939. The origin of birds and which came first, the bird or the egg? Sci. Monthly, 48(3):265-267.
The egg wins. Has a nice "layman's" explanation of derivation of bird from reptile to get away from the concept that a reptile must beget a reptile. Likens the first step away to a sport or monster among humans. In this case a sport which continued to establish its kind. Believes the transition was made "shortly after the Great Coal Period."

Wetmore
Wetmore, A.

1939. A Pleistocene egg from Nevada. Condor, 41:98-99, fig. 29
From upper shoreline of Lake Lahontan, 3 mi. w. of Lovelock, Nevada. Closest to cormorant. Pleistocene.

Miller
Miller, Alden H. and Cha. G. Sibley

1942. A new species of crane from the Pliocene of California. Condor, 44:126-127.

Describe Grus conferta on a tarsus dist end. Black Hawk Ranch at so. base of Mt. Diablo. Beaver found with it shows late Lower Pliocene age.. Shape of articular surface of inner trochlea show that inner toe lay closer and more parallel to middle toe than in modern Grus.

Pleist
Miller, A.H. and Frank E. Peabody

1941. An additional Pleistocene occurrence of the murre, Uria aalge. Condor 43:78.
At Mussel Rock in nw. San Mateo County, fresh water dep.

Miller, Alden H.

1939. Climatic conditions of the Pleistocene reflected by the ecology or 1940 requirements of fossil birds. Proc. Sixth Paci Sci. Cong., 1939, pp. 807-810.

Amadon, Dean

1947. Estimated weight of the largest known bird. Condor, 49:159-164, 1 fig. Estimates Aepyornis 965 lbs., Dinornis 520, Ostrich is 220 (the largest living bird)

Gregory, W.K. Some critical phylogenetic stages leading to the
1946. flight of birds. Proc. Linn. Soc., N.Y., 54-57:1-15,
7 figs. 6
★

Wetmore, A.
1945. A further record for the Double-crested Cormorant
from the Pleistocene of Florida. Auk, 62:459.
(2 humeri, ulna, radius, coracoid, vert., mand. of
one indiv.)

Wetmore, A.
1945. Record of the turkey from the Pleistocene of Indiana.
Wilson Bull., 57, 204.
(Meleagris gallopavo on headwaters of Kankakee River;
humerus; found 20 ft from a Cervalces skull)

Schaub, Samuel
1945. ~~Bemerkungen zum Typus von Taoperdix keltica~~
~~Eutman. Bericht der Schweizerischen Paläont.~~
~~gesellschaft. vol. 38, no. 2, pp 66-71. pl 23, 1 text fig.~~

Howe, Percy R.,
1942.

Proc. Zool. Soc. 1942, Ser. B, vol. cxiii pp 1-20.

Wetmore
1940

^{remains}
Iris bird from tertiary deposits in Ar. Or. S.
Journ. Morph., 66: 25-37, 4 text figs.

Pliocene Calif., Gavin concinna

Oligo, Wyo., Zaniella pusilla

" So. Dak., Badistomis ararius
(a lumpus)

Mid. Maryland - Miscephus melangi

Wiman, C

Beobachtungen an Aepyornis

Paleobiologica vol. 6, 1938 pp 420-428

8400

32.89

X Oligo
X Mio
X Plio

Does not include Guadalupe birds Illustrated

Richard

Illustrations in Cat. Fossil Birds of Brit. Mus. /Lydekker, 1891

Passerine from Lower Miocene of Allier (Phosphorites of Quercy p6
right humerus, complete, palmar view size of thrush

Picarian left humerus comp. palmar view from same place p8

Pelecanus cautleyi from Low. Plio. Siwalik Hills. prox and dist
ends of right femur p.38

Pelecanus sivalensis same local., dist. end right ulna from "Older
Pliocene" of Siwalik Hills, p.39

Pelecanus intermedius, mid miocene Bavaria, cranium occiput p40

P. fraasi, ditto above

Argillornis longipennis, prox. ulna (large) p.49, London Clay

Phalacrocorax miocaenus, dist. left humerus, Low. Mio. Allier p.54
small

Actiornis anglicus, prox. ulna, Up. Eoc. (Low Oligo., Hordwell,
Hampshire., p.56 (Phalacrocoracid)

Odontopteryx toliapica, imperfect skull with, serrated edge from
Low. Eoc., London Clay p. 58 (separate family under Pelecaniforms

Propelargus cayluxensis, dist. tarsus, p. 65. Ciconiid, U. Eoc.
(Low. Oligo) Phosphorites of Bach

Pelargopsis magna, prox. humerus, Low. Mio. France, p. 67 ciconiid

Amphipelargus majori, Low Plio Ise of Samos, Turkis Archipelago p69
dist. end. left tibia ciconiid

Ibidopsis hordwelliensis p. 75. dist. half right tibia, Up Eoc Hampshire
(Up. Oligo)

Palaelodus ambiguus and Phoenicopteris croizeti, Low Mio/France,
dist. right tibia, p.77

Elornis anglicus, humerus left, p. 80 (120mm. long, fig. is half this)
Up. Eoc. (Low. Oligo) Hordwell, Hampshire (Phoenicopterid)

"Except for its smaller size, this specimen presents no characters
by which it can be distinguished from the humerus of Ph. showing
the elongated oval surface for the insertion of the brachialis
anticus, characteristic of that genus as distinct from Palaelodus.
The present specimen is referred to Elornis rather than to a new
genus since the former appears to have been very closely allied to
Ph. The imperfect humerus referred to E. littoralis and figured
by Milne-Edwards in his Oiseaux Fos. pl xc fig 7 indicates a
larger species." finish quote on p. 81)

Palaelodus ambiguus, right corac. comp. Low. Mio. Allier, vent. view p.84
stout through neck as in Ph. distal expansion less tho.

P. cf. ambiguus. mid cervical vert. p. 94
very long and narrow

Agnopterus? hantoniensis, vent. and dorsal aspects (also dist.) of nearly comp. coracoid from Up. Eoc. Hampshire (no hyosternal point) p. 96. Closest to flamingoes "altho differing by its less oblique sternal border. There is no evidence that this coracoid is not generically identical with the coracoid from Hempstead upon which the insufficiently defined genus *Ptenornis* was based (with no specific name) by Seeley, 1866, Ann. Mag. Nat. Hist. ser 3 vol. 18 p. 109. Apparently very round deep scapular facet. Foramen present on procoracoid. Neck rather stout.

Palaeortyx gallica right coracoid, lacking sternal end from Quercy Phosphorites. Low. Mio. (Up. Oligo) Allier, p. 138

Phasianus altus, dist. end, dist. view only Up. Mio. Oeningen, Swiss p. 141

Grus hordwelliensis, Up. Eoc. Hordwell, p. 165, ant. view.
"long deeply sunken bridge

Geranopsis hastingsiae, left coracoid vent and dorsal views (no hyosternal process) (Gruidae?), very stout with high articular end placed high. foramen on procoracoid, tiny scapular facet, 146

Milnea gracilis, Low. Mio. Allier, left humerus, 2 views, p. 170

Larus elegans, Low. Mo. Allier, right humerus (length ~~0.50~~ 0.050) has high ectepicondylar proc. Lydekker says "To include the under-mentioned fossil forms this generic term (*Larus*) must be used in a considerably wider sense than in recent ornithology. The tarsometatarsus is elongated and has no channel on the anterior face." p. 177

Halcyornis toliapicus (originally *Larus*) Low Eoc. Isle of Sheppey. distal inc. humerus, ectepicondylar process missing. p. 181. This proc. indicated however by projection on the border of the bone above the radial condyle. NOTE, the picture doesn't look any more like *Larus* than any other water bird, though it might be shorebird group. Has much shorter radial condyle, and ant epicondyle slants down toward ulnar condyle

Aegialornis gallicus from Quercy Phosphorites, humerus p. 183 related to what? very small and stubby. looks more like pica than any shorebird.

Diomedea anglica, complete tarsus, Up. Plio Foxhall, Suffolk (Red Crag). p/ 190

Colymboides anglicus p. 193, coracoid with only tip of hyosternal end missing., vent view. Up. Eoc. Hordwell. Similar to *Colymbus septentrionalis* (is this now *Gavia*?) and unlike *Podiceps*.

Ichthyornis victor, p. 201 as in Marsh. "tarsometatarsus short, grooved anteriorly, second trochlea short and reflected, and a slight talon; tibia has no extensor bridge, coracoid has produced hyosternal process as in *Gaviae* and *Limicolae*, humerus remarkable for enormous development of deltopectoral crest. *Apatornis* of same deposits, appears to be an allied genus.

Enaliornis barretti, p. 203, compared with *Colymbus septentrionalis*
dist. view of distal end of right femur. Says "resemblance to *Colymbus* but shaft less curved.

Proherodias oweni from London Clay, p. 364, compl except two trochleae
Lydekker believes, however, that "the three distal trochleae were
evidently less nearly equal in length ~~xxxx~~ (than in herons),
(and lacked) distinct tubercle on anterior surface of proximal
portion for insertion of tibialis anticus, (also had) much smaller
and simpler talon which has no closed channels and very shallow
grooves." Relatively short and stout, deep ant. groove. Says
in these characters, specimen "comes nearer to corresponding
bone of *Cancroma* (Milne Ed. pl. xcii, fig. 7) than to any living
form.

1
Additions to fossil bird list since Lambrecht's work:

COLYMBIFORMES

Colymbus parvus -- Pliocene records of Pleisto. species Wetmore, 1937
C. nigricollis Plio. Wet. 1937a and Howard, 1948)

Grebe, sp. -- Pliocene, Calif. (Howard, 1948), Plio. Kansas (Wetmore 1944)

GAVIIFORMES

Gaviella pusilla -- considered to be Oligocene (new genus for
Shufeldt's sp. (Wetmore, 1940)

Gavia concinna -- Calif. (Wetmore, 1940), Pliocene

Gavia palaeodytes, Florida (Wetmore, 1943), Pliocene

Gavia, sp. -- Miocene of Maryland (Wetmore, 1941)

PROCELLARIIFORMES

Puffinus kanakoffi -- San Diego, Pliocene (Howard, 1948)

Puffinus felthami -- Corona del Mar, Pliocene, (Howard, 1948)

* Albatross, earliest record, Miocene (Miller, 1935, Lomita)

PELECANIFORMES

Pelecanus haliaetus, Pliocene, Idaho (Wetmore, 1933)

Pelecanus erythrorhynchos? Pliocene, Oregon (Miller, 1944)

Sula stocktoni, Miocene, Lomita (Miller, 1935)

Sula avita, Miocene, Maryland (Wetmore, 1938)

Miosula recentior, Pliocene Calif., (Howard, 1948)

Moris reyna, Pleisto, Calif., (Howard, 1936) and Howard, 1948)

Phalacrocorax auritus -- Fla. Pliocene (Wetmore, 1943), also 1933a
and Pliocene Oregon (Miller, 1944)

Phalacrocorax kennelli -- San Diego, Pliocene (Howard, 1948)

Phalacrocorax (double-crowned) Pliocene, Calif. Wet. 1945 (further see for same there)

CICONIIFORMES

Threskiornithid, sp. Pliocene Kansas (Wetmore, 1944)

Phoenicopterus stocki, Mexico, Pliocene Miller, 1944)

Megapalaeodus connectens (Flamingo) So. Dakota, Miocene (A. Miller, 1944)

ANSERIFORMES

Paranyroca magna (new family of diving ducks size of swan),

A. Miller, 1939, Lower Miocene

Dendrochen robusta (Dendrocygninae) Miocene (A. Miller, 1944) S. Dak.

Querquedula integra, probably new gen., Mio. So. Dakota, (A. Miller, 1944)

Eonessa anaticula, Utah, Eocene (Wetmore, 1938)

Chen pressa, Pliocene, Idaho, Wetmore, 1933)

Nettion bunkerii, Pliocene, Kansas (Wetmore, 1944)

Charitonetta albeola, Pliocene Kansas (Wetmore 1944)

5 unidentified ducks, Pliocene, Kansas (Wetmore, 1944)

Cygnus, sp., Pliocene, Oregon Miller, 1944), & Pliocene, Idaho (ibid)

Branta dickeyi, Pliocene, Oregon Miller, 1944)

Goose, indet., Pliocene, Oregon, Miller 1944, and Plio Idaho (ibid)

Cygnus, sp. Mio. Arizona (see list N. Amer. swan, Wetmore 1943)

Nettion carolinensis, Pliocene, Compton 1934 a)

FALCONIFORMES

Eocathartes grallator (new family), Eocene, Wyoming, Wetmore, 1944

Palaeoborus rosatus, Miocene, So. Dakota, Miler and Compton, 1939

Neophrontops vetustus, Nebraska Midl. Mioc., Wetmore, 1943

Palaeoborus howardae, Miocene Amer. Wetmore, 1936

Neophrontops dakotensis, Pliocene So. Dakota, Compton, 1935

Palaeoplancus sternbergi (new subfamily bet. Buteoninae and Circaetl
(Oligocene, Wyoming, Wetmore, 1933)

Michierax stocki (in same subfamily as above) Miocene, Calif. (Howard

Buteo grandieri, Oligocene So. Dak. Wetmore, Case 1934

Buteo antecursor, Oligocene, Wyom. Wetmore, 1933

Palaeasatur atavus, Miocene (L) Neb. Wetmore, 1943

Falco ramenta, Miocene Wet. 1936, earliest Falco (F. falconellus out)

Spizactes willerti Howard, 1933

Leptoptilos + Hani, Pliocene, Java
Ciconia vernaetha
Plio Dakota, Miller 1944

Tray, Shot, Pal. Acad. Sci. USSR 1935, vol. 4, p. 64
S. W. S. S. R. 1935, vol. 4, p. 64
Pliocene, S. W. S. S. R.

Paranyroca magna (new family of diving ducks size of swan),
A. Miller, 1939, Lower Miocene
Dendrochen robusta (Dendrocygninae) Miocene (A. Miller, 1944) S. Dak.
Querquedula integra, probably new gen., Mio. So. Dakota, (A. Miller, 1944)
Eonessa anaticula, Utah, Eocene (Wetmore, 1938)
Chen pressa, Pliocene, Idaho, Wetmore, 1933)
Nettion bunkerii, Pliocene, Kansas (Wetmore, 1944)
Charitonetta albeola, Pliocene Kansas (Wetmore 1944)
5 unidentified ducks, Pliocene, Kansas (Wetmore, 1944)
Cygnus, sp., Pliocene, Oregon Miller, 1944), & Pliocene, Idaho (ibid)
Branta dickeyi, Pliocene, Oregon Miller, 1944)
Goose, indet., Pliocene, Oregon, Miller 1944, and Plio Idaho (ibid)
Cygnus, sp. Mio. Arizona (see list N. Amer. swan, Wetmore 1943)
Nettion carolinensis, Pliocene, Compton 1934 a)

GALLIFORMES

- Taoperdix keltica now placed with Paleoryx instead of Odontophoridae (Schaub, 1945)
- crane* Ortalis pollicaris (Cracidae), Low. Mio. So. Dakota. A. Miller, 1944
- quail* Tympanuchus stirtoni (Tetraonidae), L. Mio. So. Dak. A. Miller, 1944
- quail* Miortyx teres, Phasianidae, L. Mio. So. Dak. A. Miller, 1944
- quail* Colinus hibbardi (Phasianidae) Pliocene, Kansas, Wetmore 1944
- turkey* Meleagris gallopavo, Plio. Kansas, Wetmore, 1944, *Indiana Ant. W. 1945*
- turkey* Meleagrididae, sp.? slenderer than Mel. or Ag. Plio. Kansas Wet. 1944
- crane* Meleagris crassipes - Mexico, Pleisto. Miller, 1940
- crane* Ortalis tantala (Cracidae, Miocene, Amer., 1933 Wetm) new gen?
- quail* Cyrtonyx cooki, larger than mod. 1st Cyrtonyx Mio. Amer. Wet 1934
- turkey* Parapavo californicus, Plio occurrence of Pleisto. rec. Miller, 1937 ^{Tex.}

GRUIFORMES

- Bathornis celeripes and B. cursor, Wyo. Wet. 1933, Oligo.
Found to belong with Cariamae not thicknees.
- ★ Bathornis geographicus (descendant of B. veredus from earlier Oligo of Colo. (Oligo So. Dak.) Wet. 1942
- Eogrus aeola, Eocene, related to cranes, cariamas and bustards, Inner Mongolia, Eocene, Wetmore, 1934
- ★ Eogrus sp. (Mongolia Miocene and Oligo.) Wetmore 1934
- ★ Phororhacoids: 3 families Oligo to Pliocene, reviewed by Patterson 1941. Now in Cariamae of Gruiformes
- Gnotornis aramiellus (limpkin, Aramidae), Oligocene, So. Dak, Wetmore 1942
- Badistornis aramus (limpkin, Aramidae), Oligo. So. Dak. Wetmore, 1940
- Geranoides jepseni (cranelike form of suborder Grues), Eocene, Wyoming, Wetmore, 1933.
- Grus americana, Plio, Idaho, (Miller, 1944)
- Grus conferta, Plio, Calif A. Miller, and Sibley, 1942. Low. Plio.
- Grus grus, Pleisto., (Mid.) Java, pithecanthropus beds, Wetmore, 1940
- Grus canadensis, Pleistocene, Illinois, Galbreath, 1944
- Telecrex grangeri (new subfamily Rallidae, ancestral to Rallinae Mongolia, Eocene, Wetmore, 1934
- Gallinula chloropus, Pliocene Amer. Wetmore, 1933
- Rallus prenticei, Pliocene, Kansas, Wetmore, 1944
- Epirallus natator, Pleisto. Mexico (near Aramidea and Rallus) Miller, 1942
- Urmiornis abeli and maraghanus (only the former new, a footprint from Persia (Lambrecht, 1938) other from Maragha. Gruid or ciconid.

DIATRYMIFORMES

- Diatryma? cotei, Eocene, Lyon, Gaillard, 1936.

CHARADRIIFORMES

- Gaviota niobrara -- gulllike but with similarity to scolopacids. A. Miller, and Sibley, 1941. Miocene Nebraska (up.)
- Rhegminornis calobates (new family near Jacanoidea but in superfamily Charadrioidae) Low. Mio. Fla., Wetmore, 1943
- Scolopacidae, sp. Plio Kansas, Wetmore 1944
- Palnumenius victima, near Numenius and Limosa, Pleisto, Mex., Miller, 1942

3
Additions to fossil birds since Lambrecht 1933
continued

Steganurus shufeldti Howard 1946 - Oregon

CHARADRIIFORMES continued

- *Miocepphus mcclungi* (Wetmore, 1940 and 1943), Miocene, Maryland
- *Brachyramphus*, pliocenus Elioc. Calif. (Howard, 1948)
- *Mancalla diegensis* (*Eliolunda diegensis*) Eliocene S.D. Miller 1937
and Miller and Howard, 1947)
- Uria aalge*, San Mateo Co. Calif., Pleisto. A. Miller and Peabody 1941
- Sterna* sp., Plio, Kansas, Wetmore, 1944

COLUMBIFORMES

- Columbid, sp. of ground dove, ~~*Oligoceryx*~~ Low Miocene, Fla.
Wetmore, 1943
- Zenaidura macroura*, Up Plio Kansas, Wet 1944
- Columbidae, Miocene Maryland, Wetmore, 1938

PSITTACIFORMES

- Psittacidae, sp. Up Plio Kansas Wet 1944

STRIGIFORMES

- *Protostrix mimica* (Minerva thrown out), Eocene Wyo. Wet 1938
revision 1933 and 1937
- *Strix dakota*, Miocene So. Dak., Miller (A.) 1944
- *Strix* ~~*brachy*~~ Howard 1933

PASSERIFORMES

- Passerine, sp. Miocene (U.) Trans Caucasia, Riabinin, 1934
- Compothlypidae, near Icteria. Miocene, (L) Fla., Wetmore 1943
- Passeriformes unidentified, at least 2 fringillids and 1 Icterid
Up Plio, Kansas, Wetmore 1944
- *Pandanaris convexa*, Pleistoc RLB, A. Miller, 1947
- *Pipilo angelensis*, Pleisto RLB, Dawson, 1948
- Spinus pinus*, *S. tristis*, *Amphispiza bilineata*, *A. belli*,
Spizella cf. *passeinae* RLB, Sibley

Sphenisciformes

- Reviewed By Simpson, 1946

Ratites

- *Eleutherornis helveticus*, Eocene rel'd to *Struthiones* but with
carinate affinities, Schaub, 1940
- ★ *Struthio chersonensis*, Plio SW Siberia (Tugarinov, 1935)
- Struthio andersoni* - Extension from Pleisto to Plio on shell
- *Struthio oldowayensis* Lowe, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122, 3123, 3124, 3125, 3126, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3141, 3142, 3143, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157, 3158, 3159, 3160, 3161, 3162, 3163, 3164, 3165, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173, 3174, 3175, 3176, 3177, 3178, 3179, 3180, 3181, 3182, 3183, 3184, 3185, 3186, 3187, 3188, 3189, 3190, 3191, 3192, 3193, 3194, 3195, 3196, 3197, 3198, 3199, 3200, 3201, 3202, 3203, 3204, 3205, 3206, 3207, 3208, 3209, 3210, 3211, 3212, 3213, 3214, 3215, 3216, 3217, 3218, 3219, 3220, 3221, 3222, 3223, 3224, 3225, 3226, 3227, 3228, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260, 3261, 3262, 3263, 3264, 3265, 3266, 3267, 3268, 3269, 3270, 3271, 3272, 3273, 3274, 3275, 3276, 3277, 3278, 3279, 3280, 3281, 3282, 3283, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3291, 3292, 3293, 3294, 3295, 3296, 3297, 3298, 3299, 3300, 3301, 3302, 3303, 3304, 3305, 3306, 3307, 3308, 3309, 3310, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343, 3344, 3345, 3346, 3347, 3348, 3349, 3350, 3351, 3352, 3353, 3354, 3355, 3356, 3357, 3358, 3359, 3360, 3361, 3362, 3363, 3364, 3365, 3366, 3367, 3368, 3369, 3370, 3371, 3372, 3373, 3374, 3375, 3376, 3377, 3378, 3379, 3380, 3381, 3382, 3383, 3384, 3385, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3393, 3394, 3395, 3396, 3397, 3398, 3399, 3400, 3401, 3402, 3403, 3404, 3405, 3406, 3407, 3408, 3409, 3410, 3411, 3412, 3413, 3414, 3415, 3416, 3417, 3418, 3419, 3420, 3421, 3422, 3423, 3424, 3425, 3426, 3427, 3428, 3429, 3430, 3431, 3432, 3433, 3434, 3435, 3436, 3437, 3438, 3439, 3440, 3441, 3442, 3443, 3444, 3445, 3446, 3447, 3448, 3449, 3450, 3451, 3452, 3453, 3454, 3455, 3456, 3457, 3458, 3459, 3460, 3461, 3462, 3463, 3464, 3465, 3466, 3467, 3468, 3469, 3470, 3471, 3472, 3473, 3474, 3475, 3476, 3477, 3478, 3479, 3480, 3481, 3482, 3483, 3484, 3485, 3486, 3487, 3488, 3489, 3490, 3491, 3492, 3493, 3494, 3495, 3496, 3497, 3498, 3499, 3500, 3501, 3502, 3503, 3504, 3505, 3506, 3507, 3508, 3509, 3510, 3511, 3512, 3513, 3514, 3515, 3516, 3517, 3518, 3519, 3520, 3521, 3522, 3523, 3524, 3525, 3526, 3527, 3528, 3529, 3530, 3531, 3532, 3533, 3534, 3535, 3536, 3537, 3538, 3539, 3540, 3541, 3542, 3543, 3544, 3545, 3546, 3547, 3548, 3549, 3550, 3551, 3552, 3553, 3554, 3555, 3556, 3557, 3558, 3559, 3560, 3561, 3562, 3563, 3564, 3565, 3566, 3567, 3568, 3569, 3570, 3571, 3572, 3573, 3574, 3575, 3576, 3577, 3578, 3579, 3580, 3581, 3582, 3583, 3584, 3585, 3586, 3587, 3588, 3589, 3590, 3591, 3592, 3593, 3594, 3595, 3596, 3597, 3598, 3599, 3600, 3601, 3602, 3603, 3604, 3605, 3606, 3607, 3608, 3609, 3610, 3611, 3612, 3613, 3614, 3615, 3616, 3617, 3618, 3619, 3620, 3621, 3622, 3623, 3624, 3625, 3626, 3627, 3628, 3629, 3630, 3631, 3632, 3633, 3634, 3635, 3636, 3637, 3638, 3639, 3640, 3641, 3642, 3643, 3644, 3645, 3646, 3647, 3648, 3649, 3650, 3651, 3652, 3653, 3654, 3655, 3656, 3657, 3658, 3659, 3660, 3661, 3662, 3663, 3664, 3665, 3666, 3667, 3668, 3669, 3670, 3671, 3672, 3673, 3674, 3675, 3676, 3677, 3678, 3679, 3680, 3681, 3682, 3683, 3684, 3685, 3686, 3687, 3688, 3689, 3690, 3691, 3692, 3693, 3694, 3695, 3696, 3697, 3698, 3699, 3700, 3701, 3702, 3703, 3704, 3705, 3706, 3707, 3708, 3709, 3710, 3711, 3712, 3713, 3714, 3715, 3716, 3717, 3718, 3719, 3720, 3721, 3722, 3723, 3724, 3725, 3726, 3727, 3728, 3729, 3730, 3731, 3732, 3733, 3734, 3735, 3736, 3737, 3738, 3739, 3740, 3741, 3742, 3743, 3744, 3745, 3746, 3747, 3748, 3749, 3750, 3751, 3752, 3753, 3754, 3755, 3756, 3757, 3758, 3759, 3760, 3761, 3762, 37

1949 ~~to~~ date

Cretaceous

Caenagnathus (new order), toothless

~~EOCENE~~

- ✓ Eleutherornis helveticus (ratite related to Struthionidae but suggesting carinate ancestry)
- ✓ Eocathartes grallator (long-legged vulture from Wyoming)

OLIGOCENE

- ✓ Gnotornis aramiellus (extinct gen and sp. limpkin, Aramidae)
- ✓ Bathornis geographicus (descendant of B. veredus from earlier Oligo of Colorado) -- So. Dakota
- ✓ Gaviella pusilla (Shufeldt's Gavia pusilla, now given new genus and subfamily)
- ✓ Taoperdix keltica Eastman replaced with Paleortyx (instead of Odontophoridae) by Schaub.
- ✓ Badistornis aramus (new gen. of limpkin, Aramidae - Gruiformes)

MIOCENE

- ✓ Puffinus diatomicus (new record from Lompoc by Orr)
- ✓ Paranyroca magna (new family ~~Paranyroci~~idae) size of swan but only 2 calcaneal ridges.
- ✓ Palaeoborus rosatus -- So. Dakota. Possibly closer to Neogyps than to Paleoborus.
- ✓ Gaviota niobrara (new gen of gull suggesting close link with Scolopacids.)
- ✓ Megapaloelodus connectens (new gen. Phoenicopteridae, 1st flamingo from Tertiary)
- ✓ Dendrocygna robusta (new gen, Dendrocygninae)
- ✓ Querquedula integra (probably new gen.)
- ✓ Ortalis pollicaris (Cracidae)
- ✓ Tympanuchus stirtoni (Tetraonidae)
- ✓ Miortyx teres (new gen of Phasianidae)
- ✓ Strix dakota (Strigidae)
- ✓ Indeterminate buteonine (HH suggestion, possibly Palaeoborus^{notus}, as he mentions similarity to Haliaeetus and Neogyps ulna resembles Haliaeetus)
- ✓ Gavia, sp. from Chesapeake Bay, calvert formation, Maryland.
- ✓ Rhegminornis calobates (new gen. of family Rhegminornithidae of Charadriiformes, nearest Jacanoidea but in superfamily Charadriioidea)
- ✓ Columbidae, sp. (Ground dove?)
- ✓ Comptosiidae near Icteria.
- ✓ Cygnus, sp. from Arizona, earliest swan in N. Amer.
- ✓ Neophronptor vetustus (Nebraska mid Mioc)
- ✓ Palaeastur atavus (new gen.-- affinities with Leucopternis and Spizaetus and Spizastur -- oldest of its group of genera)
- ✓ Miocepphus mcclungi (second record, 1943), first 1940)
- revision of fossil penguins by Simpson
- discussion of avian evolution by Lowe, 1939 (penguins), 1942, 1944 (two in 1944)
- ✓ Mohierax stohli

PLIOCENE

- ✓ Gavia concinna, Calif.
- ✓ Gavia palaeodytes, Florida
- ✓ Diomedea anglica (originally described from English Plio)
- ✓ Phalacrocorax auritus
- ✓ Nettion bunkerii
- ✓ Colinus hibbardi (Phasianidae)
- ✓ Rallus prenticei

PLIOCENE, continued

- ✓Columbus, sp. (smaller than auritus and nigricollis)
- ✓Threskiornithid, sp. (ibis smaller than Plegadis and Guara)
probably allied to Plegadis $\frac{1}{4}$ to $\frac{1}{8}$ smaller
than modern white and scarlet ibises and glossy.
- ✓Charitonetta albeola
- ✓5 sps. ducks unidentifiable
- ✓Meleagris gallopavo
- ✓Meleagrididae, sp.? -- more slender than Meleagris and Agriocharis
and lacks pneumatic foramen of scap.
- ✓Scolopacidae, sp.? sandpiper
- ✓Sterna, sp. -- size of Forster's Tern
- ✓Zenaidura macroura
- ✓Psittacidae, sp.? smaller than Thick-billed Parrot, Rhynchopsitta
pachyrhyncha and larger than Whitefronted, Amazona
albifrons. Extinct sp. undoubtedly.
- ✓Passeriformes, unidentified -- at least 2 fringillids and 1 Icterid.
probably others of these families and of Compothlypidae
Kansas.
- ✓Phoenicopterus stocki -- Chihuahua, Mexico
- ✓Pelecanus erythrorhynchos?
- ✓Phalacrocorax auritus
- ✓Cygnus sp.
- ✓Branta dickeyi
- ✓Goose, indet.
- ✓Eagle, indet.
- ✓Grus americana, Snake River, Idaho, 13 mi. N.W. Grandview
- ✓Ciconia maltha, Snake River Idaho, on Barbour Ranch
- ✓Cygnus, sp. " " " " " "
- ✓Indet. goose " " " " " "
- ✓Mancalla diegensis (Pliolunda diegensis)
- ✓Puffinus kanakoffi
- ✓Phalacrocorax kennelli
- ✓Miosula recentior
- ✓Brachyramphus pliocenus
- ✓Columbus parvus (new record from San Diego)
- ✓Grebe, sp.
- ✓Grus conferta -- near Mt. Diablo, Calif (A.H. Miller)
- ✓Puffinus ~~featheri~~ - S.D.

PLEISTOCENE

- ✓Grus canadensis, Illinois
- McKittrick identifications by Ida DeMay
- Carpinteria " " "
- ✓Leptoptilos titan (very large extinct sp. stork from Pithecan-
thropus beds of Central Java.
- ✓Aegyptiinae, sp.
- ✓Pseudogyps bengalensis
- ✓Grus grus
- ✓Meleagris crassipes -- San Josecito Cave
- ✓Spirallus natator (new gen. " " near Aramides and rallus
- ✓Palnumenius victima (new gen. " " near Numenius and Limosa
- ✓Pandanus convexa Pit A Rancho La Brea near Molothrus and
Tangavius.
- ✓Spinus pinus, S. tristis, Amphispiza bilineata, A. belli,
- ✓Spizella cf. passerina from RLB (Sibley)
- ✓Uria aalge San Mateo Co. Calif.
- ✓Double-crested Cormorant, Florida
- ✓Turkey, M. gallopavo, Indiana
- ✓Dawson's passerines from La Brea including ~~Pipipipip~~ Pipipip loangelensis.

EOCENE

- ✓ *Diatryma? cotei* (Ciconiidae or Palmipedes)
3 unknown forms.
- ✓ *Eogrus aeola* (cranes, cariamias and bustards)
- ✓ *Telecrex grangeri* n. subfamily of Rallidae, anc. to Rallinae
- ✓ *Geranoides jepseni* (cranelike of suborder Grues)
- ✓ *Eonessa anaticula* (n. subfamily near ruddies, earliest anatid)
- ✓ *Protostrix mimica* (closer to Strigidae than Tytotonidae, but n. fam)

OLIGOCENE

- ✓ *Eogrus* sp.
- ✓ *Buteo grangeri* } Buteonines in continuous series from Olig.
- ✓ *Buteo antecursor* } on
- ✓ *Palaeoplancus sternbergi* (n. subfam. bet. Buteoninae and Circaet.
- ✓ *Bathornis celeripes* } reallocated to n. family in suborder Cariamae
- ✓ *B. cursor* } (no longer in thick nkees)

MIOCENE

- ✓ *Eogrus*
- ✓ Penguin from Australia (first from there)
- ✓ Passerine, too frag. for ident.
- ✓ *Puffinus diat.* new finds
- ✓ Albatross, earliest record
- ✓ *Sula stocktoni*
- ✓ *Sula avita*
- ✓ Columbidae (earliest record in America) *Edwin me from Flarep's, 1943*
- ✓ *Ortalis tantala* (pos. distinct gen.) Cracid but small
- ✓ *Cyrtonyx cooki* (first rec. "yrtonyx fossil)
- ✓ *Palaeoborus howardae*
- ✓ *Falco ramenta* (earliest American record of falcon now that F. falconellus is eliminated)

PLIOCENE

- ✓ *Urmiornis abeli* (footprint) larger than U. maraghanus
- ✓ *Urmiornis maraghanus* (gaurid or ciconid)
- ✓ *Struthio chersonensis* (possibly S. wimani Lowe)
- ✓ *Sushkinia* new genus of hawk, size comparagle to African
Dissodectes -- very small
- ✓ *Struthio anderssoni* -extension from Pleisto to Plio on egg shell
- ✓ *Pliolunda diegense* (now Mancalla)
- ✓ *Pelecanus haliaeus*
- ✓ *Chen pressa*
- ✓ *Neophrontops dakotensis*
- ✓ *Colymbus parvus* (Plio. occurrence of Pleisto rec.)
- ✓ *Parapavo californicus* " " " " "
- ✓ *Colymbus nigricollis*
- ✓ *Nettion carolinense*
- ✓ *Phalacrocorax auritus*
- ✓ *Gallinula chloropus*

PLEISTOCENE

- ✓ *mois regana*

75000 in
Lambert

1938 - 1948

EOCENE

Eleutherornis helveticus 1st Eoc. giant bird (Schaub, 1940)
Eocathartes grallator

OLIGOCENE

Gnotornis aramiellus (Limpkin, Aramidae)
Bathornis geographicus (4th sp.)
Gaviella pusilla
Badistornis aramus (limpkin)
Taoperdix keltica (~~xx~~places Eastman's sp. with Paleortyx)

MIOCENE

- S. Dak
Miller
1944
- Paranyroca magna
 - Palaeoborus rosatus
 - Megapalaelodus connectens (Phoenicopteridae (1st N. Am.))
 - Dendrocygna robusta (Dendrocygninae)
 - Querquedula integra (probably n. gen.)
 - Ortalis pollicaris (Cracidae)
 - Tympanuchus stirtoni (Tetraonidae)
 - Miortyx teres (Phasianidae)
 - Strix dakota (S. trigididae)
 - Loon, sp. (smaller than G. immer (1st Mioc rec. N. Amer.))
 - Rhegminornis calobates (Charad., family Rhegminornithidae (new)
relates to Jacanas)
 - Columbidae, sp. (ground dove?)
 - Compsothlypidae, sp. (near Icteria)
 - Gavia palaeodytes (smaller than any known loon)
 - Diomedea anglica (also Up. Plio England)
 - Phalacrocorax auritus (????)
 - Swan, sp. (size of Trumpeter)
 - Neophrontops vetustus
 - Palaeasaur atavus
 - Feather of aquatic bird.
 - Miocepheus mcclungi
 - Gaviota niobrara (gull) diverge from Scolopac. since Miocene
 - Miohierax stocki
 - Rallidae, sp. (foot bones, impression and little bone)

PLIOCENE

- Phororacoid birds (Mesembriornis and Procariana)
- Gavia concinna
- Nettion bunkerii
- Colinus hibbardi (Phasianidae)
- Rallus prenticei
- Phoenicopterus stocki (now Mio, Plio and Pleisto)
- Pelecanus erythrorhynchos
- Phalacrocorax auritus
- Cygnus sp.
- Branta dickeyi
- indet. goose
- eagle, sp.
- Grus americana
- Ciconia maltha
- Mancalla diegensis
- Grus conferta (Calif. a.h. Miller)
- Puffinus kanakoffi
- Puffinus ~~kankoffi~~ felthami
- Phalacrocorax kennelli
- Miosula recentior

Fossil Flightless Birds

Struthioniformes - *ostriches*

Struthionidae

- Recent -- *Struthio camelus*, No. Africa
Pleistocene -- *S. anderssoni*, China
 S. chersonensis, S. Russia
 S. mongolicus, Mongolia
 S. wimani, China
 S. sp.? Transbaikalien
Low. Pleisto. -- *S. karatheodosis*, Samos, Maragha
 S. novorossicus, S. Russia
 S. asiaticus, Siwalik (India)
Tertiary -- *Struthio*, sp., Algeria
Age? -- *S. indicus*, Nallas (India)

Rheiformes - *Rheas*

Rheidae

- Recent -- *Rhea americana*, Southe America
Pleistocene -- *Rhea nana*, Patagonia
Up. Pleisto. *Heterorhea dabbeni*, Brazil

Casuariiformes *Emus & Cassowaries*

Casuariidae

- Extinct(Recent?) -- *Dromaeus diemenianus*
Pleistocene -- *Dromaeus patricius*, New South Wales
 D. gracilipes, Queensland
Dromaeus { *D. queenslandiae*, "
 D. minor, King Island
 Casuarus lydekkeri, New South Wales
Casuaridae { *Dromornis australis*, Queensland
Dromornitidae { *Genyornis newtoni*, South Australia

Dinornithiformes - *moas*

Dinornithidae

- Dinornis giganteus*, North Island, New Zealand
Dinornis maximus, So. Island, N.Z.
D. ingens, North Island, N.Z.
D. novaezelandiae, North Is., N.Z.
Dinornis dromioides, North Island, N.Z.

Anomalopterygidae

- Megalapteryx didinus*, So. Is., N.Z.
M. hectori, So. Is., N.Z.
Anomalopteryx didiformis, North Is., N.Z.
A. parvus, So. Is., N.Z.
A. antiquus, so. Is., N.Z.
A. curtus North Is.
A. oweni, North Is.
Emeus crassus, So. Is.
Emeus casuarinus, North Is.
E. huttoni, So. Is.
E. exilis, north Is.
Euryapteryx elephantopus, So. Is.
Eur. immanus, loc. of type unknown
Eur. ponderosus, So. Is.
Eur. kuranui, No. Is.
Eur. gravipes, So. Is.
Eur. pygmaeus, North Is.

2, flightless birds

Aepyornithiformes

Aepyornithidae

Recent and Pliocene

Aepyornis maximum, Madagascar

A. medius, Madagascar

A. gracilis "

A. hildebrandti, Madagascar

Müllerornis betsilei

M. rudis

M. agilis

Lower Oligocene

Stromeria fayumensis, Fayum

Eremopezus eocaenus, Fayum

Eocene?

Psammornis rothschildi, Africa, Algeria

P. lybicus, Africa

Apterygiformes - Kiwi

Apterygidae

Pseudapteryx gracilis, Recent, New Zealand

Metapteryx bifrons, Pleistocene, Queensland

Tinamiformes - Tinamou

Tinamidae

Tinamisornis parvulus, Upper Pliocene, Patagonia

T. intermedius, Upper Pliocene, Patagonia

Nothura paludosa, Pleistocene, Argentina

Sphenisciformes - Penguin

Spheniscidae

Palaeospheniscus patagonicus and P. menzbieri etc. (9 spp.) Miocene, Patagonia

Palaeospheniscus? gracilis, Upper Oligocene, Patagonia

Paraspheniscus bergi and P. nereius, Miocene, Patagonia

Perispheniscus, Miocene Patagonia

Palaeopteryx ictus, Miocene, Patagonia

Argyrodyptes microtarsus, Miocene, Patagonia

Pseudospheniscus and P. concavus, Miocene Patagonia

Delphinornis larseni, Miocene Patagonia

Neculus rothi, Miocene Patagonia

Ichthyopteryx gracilis, Miocene Seymour Island

Metancylornis curtus, Miocene, Patagonia

Eospheniscus gunnari, Miocene Seymour Island

Isotremornis nordenskjoldi, Miocene, Patagonia

Paraptendytes antarcticus, Miocene, Patagonia

Arthrodyptes grandis, Miocene, Patagonia (and A. andrewsi, also)

Anthropornis nordenskjöldi, Miocene, Seymour Island

Pachypteryx grandis, Miocene, Seymour Island

Orthopteryx gigas, Miocene, Seymour Island

Treleudytes crassa Miocene Patagonia

Palaeudyptes antarcticus, Miocene New Zealand

Pachydyptes ponderosus and P. novaezealandiae, Miocene N. Z.

Cladornithidae

Cladornis pachypus, Upper Oligocene, Patagonia

Cruschedula revola, Upper Oligocene, Patagonia

Hesperornithiformes

Hesperornis regalis up. cut. Kansas

" crassipes "

" altus "

" montana "

Hesperia gaudis "

montana

Kansas

3, flightless birds

Ralliformes - Ralls

Rallidae

- Aphanapteryx bonasia, Pleistocene, Mauritius Is.
- A. leguati, Subfossil Rodriguez Is.
- Diaphorapteryx hawkinsi, Recent, Chatham Is.
- Gallirallus minor, Pleistocene, N.Z.
- Leguatia gigantea, Mauritius or Reunion Is.
- Nesolimnas dieffenbachii (link between flying and flightless rails)
Subfossil Chatham Island
- Aptornis otidiformis Subfossil North Isl. N.Z.
- A. defossor, Pleistocene, N.Z.

Telmatoformes (order includes cranes and shorebirds, etc.)

Phororhacidae (South America)

Lower Pliocene

- Prophororhacus incertus and Rostrornis floweri

Miocene

- Phororhacos (9 species)
- Pelecyornis australis and 5 other species
- Brontornis burmeisteri and platyonys
- Liornis floweri and ~~Liornis~~ minor
- Lophiornis obliquus
- Ameghinia eocaenica
- Callornis giganteus
- Staphylornis gallardoi (and two other species?)

Upper Oligocene

- Physornis fortis

Oligocene

- Phororhacos, sp.

Alcidae

Pliocene, California

- Mancalla californiensis

Pleisto-Recent Funk Is., etc.

- Plautus impennis

Diatrymaformes

Diatrymidae Eocene of Europe and North America

Ypresian -- Diatryma sarasini, Europe

Sparnacien (low.) Gastornis parisiensis, G. edwardsi

Remiornis minor, All European

Londinien -- Gastornis edwardsi

Lower eocene -- Gastornis ~~klasseni~~ and Dasornis londiniensis

Eocene (division?) of North America

- Diatryma regens, D. gigantea and D. ajax, Omorhamphus storchi

Columbiformes - Pigeons etc + Dodo

Dididae

- Didus ineptus (equals Raphus cucullatus) -- subfossil, Mauritius

Didus apterornis

- Pezophaps solitaris -- Rodriguez

THE EVOLUTION OF BIRDS

In recounting the history of birds, the story might well begin, "Once upon a time. . . ." For it is necessary to go back about 200 million years to understand the first ancestral leanings toward the development of feathered, airborne creatures.

Among the sluggish, crawling coldblooded animals of the Age of Reptiles, ^{we may visualize a} ~~there was one~~ group which was a little more progressive than the rest. The members of this group raised themselves from a crawling position so that, in running, the belly was off the ground. Still more daring members of succeeding generations rose to the hind legs, and perhaps, by spreading the forelegs attempted some type of leaping as a mode of progression. Increasing activity, and decreasing contact with the ground must have played a part in changing the metabolism of these creatures, though, of course, it is uncertain when they ceased to depend on environmental conditions for the warmth of their blood, and established their own heating system.

Nevertheless, some time between 200 million and 150 million years ago, one group of reptiles exchanged their scaly covering for one of feathers, and it ^{is} ~~might~~ be assumed that "warmbloodness" developed at the same time. The structure of scales and the structure of feathers is very similar, and the process of exchange was undoubtedly a gradual conversion of the one into the other, associated with the changing mode of life of the creatures which bore them, and accompanied by increasing ability to leave the ground and leap from bush to tree, or glide from one tree to another.

By the middle of the Age of Reptiles, 150 million years ago, ancestral reptile-birds developed feathered wings and tail and had a good covering of feathers over the body. Anatomically these creatures were more reptile than bird. The jaws bore lizard-like teeth, and even the tail, in spite of its plumage, was quite reptilian, being long, with the feathers merely bordering the edges throughout its length. These ancestral birds, which we know as Archaeopteryx and Archaeornis, ^{probably} had a higher body temperature than their scaled predecessors. They were undoubtedly able to soar for short distances, but could not have been accomplished fliers.

^{We assume that} Finding aerial navigation by means of feathered wings ^{was found} a highly efficient mode of travel, and a distinct advantage in the matter of self- and race-preservation. Succeeding generations perfected the wing mechanism over a period of 30 million years. In the last period of the Age of Reptiles, the Cretaceous, the ^(about 60-120,000,000 years ago) wing structure was about as efficient as it is in modern birds, ^{avian} and though many of these ^{Cret.} birds still bore reptile-like, toothed jaws, the general anatomy was distinctly avian. The Class Aves was clearly established, and it was beginning to show the first indications of differentiation into groups recognizable as the forerunners of the modern ^{avian} orders.

For example, there was Enaliornis, a diving form which could have been ancestral to both the grebes and the loons, and possibly to the flightless Hesperornis of late Cretaceous time, as well; Sclaniornis resembled ^{both} the flamingoes and the herons; Eloptryx was a generalized ^{form of the} steganopode (pelican-cormorant group); and Gallornis was an ^{anseriform} bird with characters ^{the} similar ^{of} to both ducks

^{no clues were left here as to its identity}

<sup>with big
nostrils
possibly
pelicaniform?</sup>

and swans. Ichthyornis and Apatornis were so different from any living birds that they have been listed under a distinct order. Even these birds, however, bore characteristics suggesting one-time close relationship of the shorebirds, herons, and cranes.

At the beginning of the Cenozoic Era (60 million years ago) practically all of the modern orders were represented, and several families were already recognizable. Unfortunately, however, the fossil record is too scant to provide complete pictures of the history of individual groups. Nevertheless the scattered species available contribute bits of information which can be pieced together to round out the story.

*They may be
Sotek spallins!* The perching birds entered the scene at this time with three species of shrikes and another form which linked the characters of the titmouse with those of the old world warblers. The pheasants first occurred; and an interesting form related to the curassows but suggesting a former link with the rails and gallinules. The cranes became well established and were distinct from the rails which also appeared at this time. The herons, flamingoes and ibises were distinguishable as separate families. The raptores were represented by two vultures and a hawk. Among the sea birds, the divers were not yet separable into grebes and loons, nor were the cormorants and boobies distinct. A large bird, Gigantornis, showed characters linking the shearwater-albatross group (Procellariiformes) with the pelican-cormorant group (Pelecaniformes) and probably was the last of an ancestral stock which gave rise to both of these lines. The Procellariiformes were not distinguishable as a separate order until a few million years later (Oligocene epoch) when the first shearwaters appeared.

By the middle of the Cenozoic Era (Miocene epoch), the ramifications of the avian class were profuse, and most of the main groups of birds we know today were recognizable. From that time ~~up~~ to the present day, the changes which have taken place have been relatively small. New genera and species have appeared, and the older ones have died out, but the major evolutionary steps in the development of the class as a whole had apparently all been accomplished 30 million years ago.

Hildegarde Howard, February 5, 1947

Evaluation
of Birds

Winter in 1947

The derivation of the Class Aves from the Reptilia is now undisputed among ornithologists. The earliest feathered forms revealed by the fossil record are so markedly reptilian in anatomical characters that had feather impression not been present with the skeletons their avian relationships might never have been recognized.

These fossils, the well known Archaeopteryx and Archaeornis, were recovered in the middle of the last century, from the lithographic slates of Bavaria of Jurassic age, estimated to be about 130 million years old. The intricacies of their anatomy have been studied ~~in~~ by numerous scientists and the reader is referred to Heilmann (1926) for a complete analysis. It is sufficient here to remark that the jaws bore sharp-pointed teeth set in sockets, the ~~tail~~ bones of foot and hand had not ~~completely reached~~ reached the stage of coossification found in modern birds, but resembled those of some of the bipedal dinosaurs; ~~and the bones of the hand were arranged in such a way that~~ the fingers were tipped with claws; the bony part of the tail was long as in the lizards, but was flanked on each side by a row of ~~well-developed~~ quill-like feathers; the wings also were bordered with feathers of the same type. ~~It is generally~~ With the exception of Lowe (1935 and 1944) palaeornithologists today place these Jurassic toothed creatures within the Class Aves. It is generally conceded, also, that they represent a group of primitive birds very near the ancestral avian stock, and indicate a trend toward flight at a very early stage in avian evolution (Simpson, 1946).

Lowe, on the other hand, advances the theory that the Bavarian forms were "~~gliding arboreal dinosaurs~~", the blind alley result of potentialities for feather production in a common dinosaur-avian ancestor. The first birds, he postulates, were terrestrial forms similar to some of the primitive dinosaurs (1944, p. 521). The ostriches, emus, and the like, he considers to be the descendants of non-volant ancestral stock. The flying birds he believes did not evolve until late in the Cretaceous (1935, p. 406). The penguins he derives ~~independently from the~~ also from terrestrial antecedents, concluding that they were never able to fly. This latter conclusion regarding the penguins was refuted by Simpson (1946) and, I think, justifiably. I do not agree either with the interpretation of Archaeopteryx as a gliding dinosaur. But that is perhaps a matter of definition. In primitive forms, where distinctions are so difficult to make, it would appear to me that the acquisition of feathers would suffice to place the animal across the line into the Aves.

However, I do not consider Lowe's entire theory of avian origins untenable. Theoretically ~~it~~ it seems reasonable to assume a measure of "adaptive radiation" among the birds just as it has been observed to have occurred ~~among~~ more than once among the mammals. In the early Mesozoic, the tendency to the development of a protective covering for the body was arising in two separate reptilian lines: mammals (hair) and birds (feathers). As regards the birds, the matter resolves itself into the question, Did the development of feathers merely parallel the development of hair as a means of body covering, and once acquired prove highly adaptable for flight, or did it actually hinge upon the acquiring of gliding and flying habits?

If we choose the first of these alternatives, a modification of Lowe's views is tenable. ~~It is possible that the first feathered creatures~~ Granting that the pre-avian must have been one of the primitive reptilian forms which

concerning a terrestrial ancestor

If we choose the first of these alternative, a modification of Lowe's views is tenable. It is generally agreed that the pre-avian was one of the early reptiles which had begun to show specialization toward bipedality; ~~presumably the same~~ the same stem from which the dinosaurs also branched. With such an ancestor, terrestrial, or partially leaping and climbing, as are some of our lizards today,

Such an ancestor would have been partly a terrestrial running form, partly

presumably
Such an ancestor carried the potentialities for running on the ground, and presumably for leaping and climbing as well, as we see among the lizards today. The acquisition of feathers by ~~the~~ descendants of this stock ~~may~~ could well have resulted in the occurrence of a number of feathered creatures in the Jurassic (~~Archaeopteryx~~) whose adaptations ~~were~~ included both running and climbing or gliding habits. ~~If there were also~~ The swimming adaptation would more logically have come later, and probably through the terrestrial rather than the climbing. The advantages of gliding and flying would The advantages of gliding and flying, for which the feather structure fitted them, over purely terrestrial habits in which competition was so much greater, may have provided the stimulus which resulted in the ~~greater~~ dominance of volant forms. At the same time some of the ground dwellers ~~which have achieved~~ especially those which achieved the greatest speed, continued on but ~~always~~ never reached the high degrees of skeletal specialization of the flyers. As Lowe has pointed out (19) the characters of the living Ratites show a marked degree of primitiveness.

phylogenetic
It is the volant forms, probably, which are of greatest interest to most of us. ~~Whether~~ Regardless of the position we accord to Archaeopteryx and Archaeornis, the fact remains that they do represent an early adaptation toward flight by means of a feathered wing. It seems logical to assume, therefore, that the development of true avian flight cannot have been far removed from this primitive attempt. By Upper Cretaceous time (some 50 million years later) the typical avian wing, and keeled breastbone denoting the attachment of large wing muscles, had developed. In view of the minute changes which have been observed in comparing large series of Upper Pleistocene with Recent bird skeletons (Howard) it is conceivable that a space of 50 million years would be a reasonable period in which to bring about the changes from a limb of Archaeopterygian type to one of the Ichthyornithiformes of the Upper Cretaceous.

time flight
At least, by Cretaceous time we may safely say that the avian group was well established. It is to deposits of this age that we must turn for evidence of the phylogenetic relationships between the various orders of birds. For by Eocene time, practically all orders known today, and many of the families, were already distinguishable.

The best known Cretaceous remains come from the upper part of this period in the middle United States. Two orders (represented by 6 genera) have been described from this area. In one genus of each, well preserved skulls indicate the presence of teeth in the jaws, and the pelvises show the primitive condition noted in the Jurassic forms, i.e. separation of the ischium from the ilium. Therefore, in spite of the fact that the limb bones reflect certain characters resembling modern orders of birds, these fossil forms are separated therefrom and grouped into two primitive orders, the Hes

the Hesperornithiformes and the Ichthyornithiformes. Both are considered to be waterbirds. The former unquestionably were adapted for swimming. Its hind limb elements are very similar to those of the modern grebes and loon. Its forelimbs, however, were almost completely degenerate, the sternum unkeeled. But the hind limbs were very similar to those of the modern grebes and loons. So similar in fact, that it is considered plausible that the modern forms were derived from an ancestral stock of which the Hesperornithids represent an overspecialized offshoot. A number of other swimming birds from the Cretaceous of Europe and of South America also show relationship to the modern divers as well as to Hesperornis. Unfortunately the ~~skeletal~~ jaws are not represented in any of these birds, ~~so that~~ these birds are known. Lambrecht (1933) places them closer to the grebes and loons than to Hesperornis. Unfortunately no jaws are represented ~~in~~ so that it is impossible to determine whether or not these Cretaceous birds were toothed. It is interesting to observe that the European Enaliornis comes from the Lower Cretaceous and thus antedates Hesperornis ~~or~~ Neogaeornis of America. The characters of both grebes and loons are so closely tied together in these early divers whether or not these Cretaceous birds ~~represent~~ represent close relatives of the ~~modern divers~~ modern divers. By Upper Eocene time the European Colymboides is clearly of modern diver type, but ~~it is not until the Oligocene that~~ it is not until the Oligocene that the grebes and loons can be separated from each other, both orders being represented in America at this time. The loons seem to have been appeared later in Europe.

a specific
The Ichthyornithiformes show less resemblance to ~~modern birds~~ modern birds. ~~but it is not until the Oligocene that~~ a modern order of birds, though the skeletal structure suggests a number of different forms.

Other Cretaceous avian remains have been recovered in Canada, Sweden, France and Transylvania. With the exception of the Canadian remains no jaws have been found with any of these birds. The Canadian mandible is completely toothless. The characters are so decidedly different from those of any living bird, however, that a new order, The Caenagnathiformes, ~~was~~ was erected to contain it.

The Order Anseriformes appears to have its ancestral roots in the Cretaceous as evidenced by fragmentary material from Frankreich which Lambrecht (1931, Bull. Mus. roy. d'Histoire nat. de Belgique, 7(30) 5 pp.) described as being morphologically between the ducks and swans. A close relative of this Cretaceous bird appears in the ~~Musee~~ at the beginning of the next geologic period, in the Upper Eocene epoch of France. Ducks and swans are clearly separated in Europe in the succeeding epoch, the Upper Oligocene. From the fossil record it appears that the Anseriforms were slow in reaching America, though these ~~records~~ are questionable records from the Oligocene and Miocene of South America. The geese appear in the Miocene of North America and continue through to the Recent, but the ducks and swans are not evident until Pliocene time, here.

The ~~fragmentary~~ fragmentary nature of the specimens scarcely justify the assertion, however, that the form represents an actual common ancestor, though such relationship, in fact of all anseriforms is to be expected. Other hard-to-assign anseriforms appear both in Europe and America in the Eocene. The European form ~~appears to be~~ has been likened to the Dendrocygninae, the American bird to the Erismaturinae. Each, however, is assigned to a separate, and now extinct subfamily.

The European Enaliornis was found in beds of Middle Cretaceous and is undoubtedly the ancestor of the modern grebes and loons.

The name of this, however, was similar to the modern grebes and loons.

avian

Two other orders ~~appears to~~ have been recorded from the Cretaceous the Ciconiiformes with 2 flamingo-like forms; and the Pelicaniformes with an ancestral cormorant.

now extinct

The two ciconiiformes referred to the family *Scaniornithidae* (Lambrecht, 1933) were ~~recovered~~ found in deposits of Upper Cretaceous age in Sweden. Lambrecht stresses the flamingo-like characters of the bones but believes they may represent a group which was ancestral to the herons as well. (ibid, p. 338). Flamingo-like bones appear frequently in the European record of the early Tertiary and before the middle of that period the genus *Pheonicopterus* was distinguishable. ~~This Upper Cretaceous~~ The family is not represented in America until the Lower Miocene (Miller, A.H. 1944).

The pelecaniform species from the Upper Cretaceous of Transylvania is placed in a separate, extinct family between the *Sulidae* and the *Phalacrocoracidae* (Lambrecht, 1933 p. 287). The bones are of pelican size, but, Lambrecht concludes, are more nearly related to the cormorants. Two Eocene genera, one from Siebenburgen the other from England are placed in the same family. ~~One of the other~~ The specimen from Siebenburgen is a lower mandible, of typical toothless avian type with characters relating to both the *sulids* and the cormorants.

Reviewing the Cretaceous record we find evidence of the early presence of anseriforms, ciconiiformes and Pelicaniformes as ~~clearly~~ distinguishable orders, and the indication of an ancestral link between the *colymbiforms* and *gaviiforms*. As more Cretaceous fossils ~~are~~ recovered, there is reason to believe that the ancestors of many, if not most of the other orders will be discovered. For by the beginning of the next great geologic Era, in the Eocene epoch of the Cenozoic Era, practically all avian orders appear. The exceptions occur among the *ratite* orders, and the *Caprimulgiformes* and *Coliiformes* for which no fossils are known from any period, and the penguins, the earliest of which are known from the Miocene.

1940's?

- 1 ✓ Introduction
 - Definition of avian paleontology
 - Definition of fossils, how preserved and where found.
 - Geologic time scale
 - Bird fossils compared with mammals for abundance
 - Number of localities in U.S. where fossil birds found.
 - Number of species of fossil birds known in U.S.
 - Number of species by states.
- 2 ✓ 3 ✓ Zoological Classification
 - 4 ✓ Comparative Osteology -- birds vs. reptiles and mammals
 - Feathers
 - Skull
 - Pelvis and shoulder girdle
 - Limb bones
 - 4 ✓ Comparative Osteology -- different families of birds
 - Elements of value and those which are valueless
 - Characters used in identification
 - Size, proportions, physical characters, etc.
 - 5 ✓ Origin of birds
 - Archaeopteryx and Archaeornis vs. reptile
 - Problematic Proavis
 - 6 ✓ Pre-tertiary fossil birds
 - Hesperornis and Ithyornis
 - 7 ✓ Tertiary birds of North America
 - Eocene, Oligocene, Miocene Pliocene
 - 8 ✓ Pleistocene birds of North America
 - Extinct, and representatives of living forms
 - 9 - 10 Extinct flightless birds
 - The problem of their origin and relationships
 - Families in which they occur
 - Struthionidae, Rheidae, Casuariidae, Dinornithidae, Anomalopterygidae
 - Aepyornithidae, Apterygidae, Tinamidae, Spheniscidae, ~~Hexperornithidae~~
 - Rallidae, Phororhacidae, Alcidae, Diatrymaformes, Columbiformes.
 - 11 The history and development and future of birds as revealed by paleontology
 - Reptilian ancestry with teeth
 - Trend toward ossification of limb elements
 - Trend from small to large and back to small again
 - Young group showing great variation, breaking up into separate species with time and distribution
 - North American origin? of Aegyptiinae, Miocene N.A. Aegyptiines

866
612
254

Toothed bird
Plesiosaur
Archaeopteryx
Archaeoniscus

17 above
6 between jaw?

Cetacean

Sphenoniscus - in separate alveoli 21 in lower jaw (at side) *Mosasaurs*
Hesperoniscus - continuous groove 14 in up. (maxilla) 33 each side below (below *Sphenoniscus*)
Furber believes *Hesperoniscus* belongs with *Coleopteryx*
Sphenoniscus " " *Charadriiformes*

"On both the possession of teeth is an original, primitive trait
That was lost in the course of time & replaced by the horny beak."

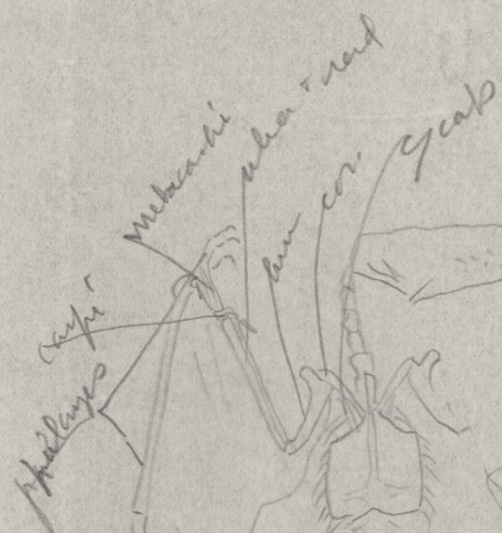
Eocene

Archaeoniscus longipennis Owen. appear on upper jaw &
beak tooth sockets (4 vertical pits filled with material)

Gastornis parisienensis. The forepart of the lower jaw joint &

The premaxilla of this giant bird show distinct alveoli.
Omorhamphus (W 901)

"large circular to oblong pits, presumably vascular, occur
in linear series just within the attenuated lateral margin
4 pits on left lower, 3 on right - most resemble alveoli for teeth
but 2nd in left series is small & out of line. While first on
it is long deep depression resembling cavity occupied by a
blood sinus." So far as I know *Gastornis parisienensis*
the only bird yet described which has similar perforations
in the beak margin. *Omorhamphus* differs from *Gastornis*
in other details & shows no trace of having possessed bony
marginal denticulations on the beak."



Sterodactyl



Bird

Carpal



Copied from VERY old pencilled notes (1940's?)

The principal characters used to distinguish bird bones are:

1. General characters of the bone. For instance is the tarsometatarsus the flattened type of the grebes, loons and murre, is it the long, slender type of the storks or cranes, is it stocky with well-developed trochleae such as in the raptorial.
2. Detailed characters. Having determined the family by general characters, the details of structure indicate the genus or species. For instance in the Bald Eagle, the tarsometatarsus is more rugose and the bone a more irregular shape than in the Golden Eagle.
3. Size. In some families, one species is very much larger -- or smaller than other known related species and is thus easily separable from them. This basis of separation, however, is not enough in dealing with fossil bones which may represent an extinct, and unknown species of the same odd size.
4. Proportions. The relative breadth to length of a bone is sometimes helpful in diagnosis of species and even more important often is the size of some protuberance or facet, relative to the length or breadth of the bone. An example of the former is the distinction between the Marbled and the.....Godwit. The tarsometatarsi are similar in appearance except that in the former it is a relatively longer bone.

To learn the distinguishing characters of the elements throughout the various groups of birds it is necessary to have access to a good collection of bird skeletons and study the actual specimens. Handling the bones themselves is the only way really to appreciate the subtleties of difference, particularly as pertaining to species.

Every skeletal element has characters which will assign it to its proper order, and to the family as well. Generic and specific characters, however, are less clearly marked and in certain of the living species only a comparison of size of one element with size of another will separate the species. Instances of this nature are difficult to cope with in dealing with fossil remains. For it is only rarely that associated skeletal elements are found.

In the identification of species, the ulna, radius and fibula are of the least value, and in many cases are completely useless. Though the complete skull and lower mandible are specifically diagnostic, it is extremely rare to find a complete specimen in a fossil state-- the bone being particularly fragile in this region. Usually only the cranial portion is preserved and this is surprisingly uncommunicative. Consequently, the avian paleontologist finds valueless the very element upon which the student of fossil mammals bases most of his conclusions. The tarsometatarsus and humerus of fossil birds are the most satisfactory elements for the paleontologist (avian). The others are of varying importance. The sternum and pelvis, like the skull are subject to breakage and are also extremely variable as to detail, so are not dependable.

In the Gaviiformes, tibiotarsus is best, tarsometatarsus not so good
Colymbiformes, tibiotarsus best, femur? tarsometatarsus OK
Pelicans: Humerus and carpometacarpus best, ulna, femur, tibia, tarsus, size
Cormorants ulna no good, others OK
Anseriformes: Humerus best, tarsometatarsus OK in some
Falconiformes: tarsometatarsus best, humerus OK, ulna and radius bad,
coracoid and pelvis not good
Galliformes tarsometatarsus and humerus best

Call notes vs song.

The call note, which may be anything from a clucking sound to a screech ~~is a comparatively simple~~ ^{is a comparatively simple} ~~little~~ sound & may have been the primitive bird ~~note~~ ^{note} before true song developed. It is only in the higher families of birds ^{above} (the catbirds) that ~~there was~~ what could be termed a true song is developed.

In the Oscines (or true singers) the ~~structure~~ ^{structure} of the syrinx is as follows:

In the syrinx (which is located at the lower end of the trachea where it divides into bronchial tubes) are the membranes which vibrate as do the vocal cords of mammals. In the oscines these membranes are controlled by 5-7 pairs of muscles. In the lower families there are fewer muscles. Sounds are produced by air meeting part of the membranes & causing them to vibrate. The rapidity of the vibration, & thus the sound produced, is controlled by the tension of the muscles.

True Alauda - Lower Pliocene Italy

Palaeospiza (~~but Alaudidae~~ connecting point) ^{the acutiplanular Osmia}
"between the Mesomyodi & the acutiplanular Osmia"
Upper Miocene - Colorado. (Among shells plentiful insects)

Palaeoithalys curvirostris (pombos Sitta?) ^{other 9 genus}
most characters of genus Sylvia ¹ Parus
or perhaps Parula, It has the head of the 1st
feet of the 2nd.

Upper ^(grail) Exone - Montmaurice / Lauree)
Beak thin & distally elongated. Tarsus 15, hum. 13,
metacarp. 8.
Large cranium.

Modacilla (Wagtail)
upper 0.150.

3

(*Halcyon* ~~*haliaetus*~~ Europe - cranium like *Halodendro*
somewhat like *Alcedinidae* also)

Paragus prentici Amer. - crane as tall as *canadensis*

Aletornis pennix, Amer. - crane - like

Palaeotis weigelti Europe - a large "Trappe" also has ^{one} char.
like *Pavo*.

Palaeognus princeps ^{Europe} - small crane - like bird lacking however
prominent tubercle at dist. end of tibia

Protopus nobilis } crane - like - smaller than *S. canadensis*
" *maedii* Amer.

Saornis edwardsianus ^{Amer.} - anserine? Stufeldt says a
generalized type of Wader.

Granopsis harringsiae Europe crane - like

(2)

Peleorallus Trosselli Amer.

Eocrex primus Amer. a swimmer rather than a wader
set the suffamides, Ballinas &
Sullimulinas (near the latter)

Fulicaetornis venustus Amer. - Codd-like in fact placed
in *Fulica* by Mufeldt but Daulbecht
made another generic name as hard
- Rec. genus - Eoc.

Gynerallus intermedius Europe - ^{only} slight difference
from modern rail

Gypsornis curvica Europe rail-like somewhat like
P. phylomelanos but wears a canids

Telmatornis affinis
" *priscus* } rail-like
" *aex*

Alatomis pernix - crane-like

~~*Halegornis taliaferus* Europe~~

Bibliographic references which should be checked:

- Atanasiu, I. Geologie....B. Paleontologie, In, Bibliographie des travaux scientifiques en 1943. Bull Acad. Roumaine, Sect. Sci., 1945, suppl. vol. 26, p. 784.
Ibid for 1944 and 1946, see vol. 27, 786-788.
- Burma, B.H. Some aspects of the species concept in the light of quantitative paleontology. Bull. Geol. Soc. Amer., Dec. 1946, vol. 57, pt. 2, p. 1183.
- De Wit, R. Een skelet van de Dodo te Delft. Geol. Mijnbouw, Sept. 1940, new ser., Jaarg. 2, no. 9, pp. 197-200.
- Duncan, F. Martin. Wonders of migration. London, Sampson Low, Marston & Co., Ltd., 1946 150 pp., 13 pls.
- ~~Lull, R.S. ^{crocodile} Fossil gavials from north India. Amer. Jour. Sci., Aug. 1944, vol. 242, no. 8, pp. 417-430.~~
- Marples, B.J. Notes on some neognathous bird bone from the early Tertiary of New Zealand. Trans. Prox. Roy. Soc. N.Z., sept. 1946, vol. 76, pt. 2, pp. 132-134.
- Leonardi, Piero Trace de Hamatopus wildfeureri sur une plaque sable du gres bigarre de Thuringe. Mem Ist. Geol. Univ. Padova, 1946, vol. 14, pp. 3-12, 1 pl.

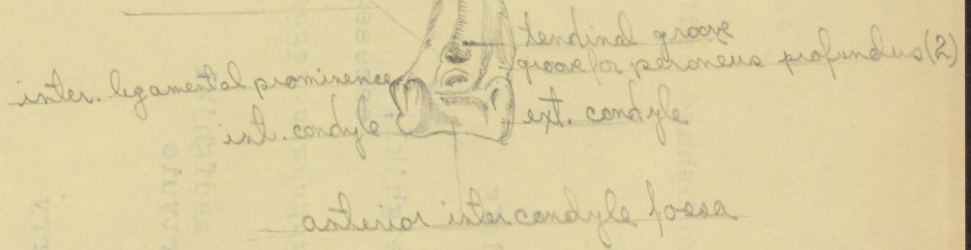
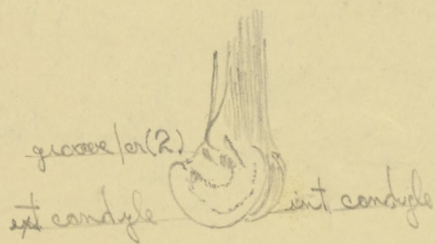
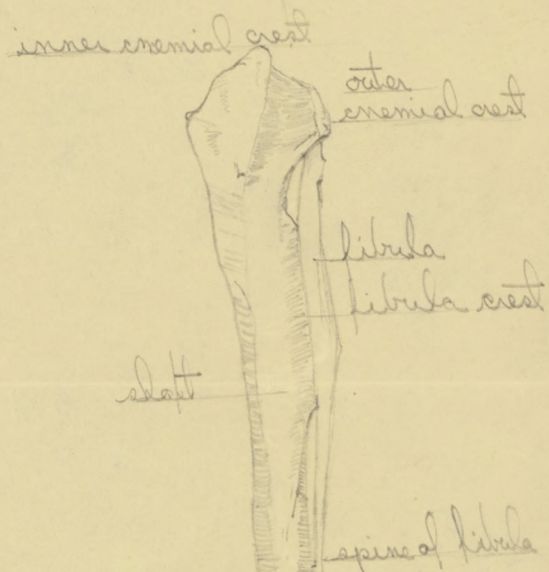
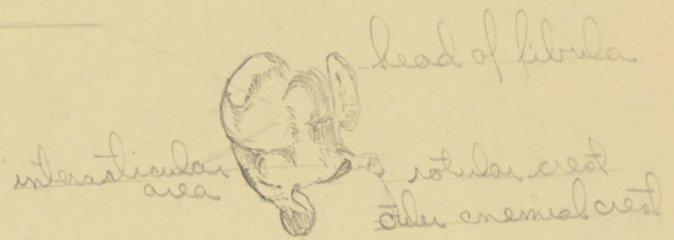
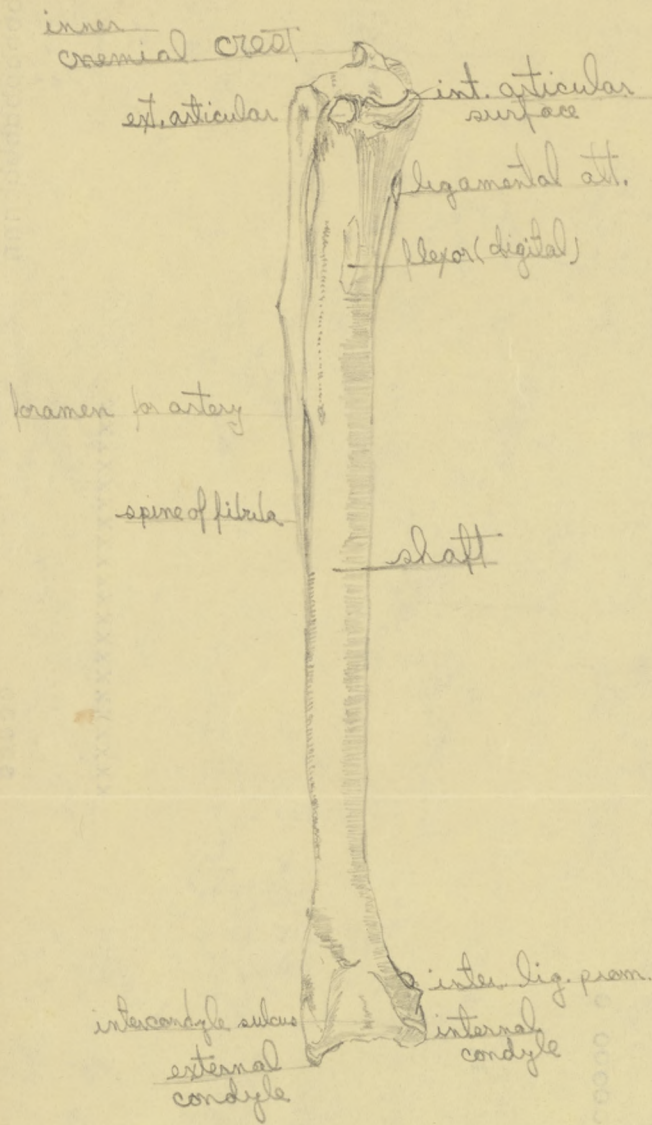
Orme di Hamatopus wildfeureri su una lastra di Arenaria del Buntsandstein della Turingia. Mem Inst. Geol. Univ. Padova, 1946, vol. 14, pp. 1-14, 1 pl.
- Wiman, C. Rostrale und Praedentale, zwei Dinosaurierknochen, bei Lamellirostres und anderen Vogeln. Senckenbergiana, Frankfurt, Sept. 1, 1946, vol. 27, no. 1/3, pp. 12-24, pl. 1-2.
- Amadon, Dean. An estimated weight of the largest known bird. The Condor, July-Aug. 1947, vol. 49, no. 4, pp. 159-164

Ecology and Evolution of some Hawaiian birds. Evolution. 1947, vol. 1, nos. 1-2, pp. 63-68
- Bohlin, Girgir. The wing in the Archaeornithes. Zool. Bidr., Uppsala, Festskr. Prof. Nils von Hofsten, 1947, vol. 24, pp. 328-334
- Broom, Robert Did the ancestors of the ostrich fly? The Ostrich, July 1947, vol. 18, no. 1, pp. 47-50.
- Clark, John. He did not choose to fly. Carnegie Mag., Nov. 1947 vol. 21, no. 4, pp. 115-116/
- Friant, Madeleine. Development et interpretation de la ceinture scapulaire du Nandou (Rhea). Rev. Zool. Bot. Africaines, Dec. 59, 1945, vol. 2211, no. 23, pp. 711-713.

Les os carpiens du Nandou (Rhea). Ibid. Nov. 19, 1945, vol. 221, no. 21, pp. 641-643.

Stegemann, B. Über die Flügelhaltung von Archaeornis in der
Ruhestellung. Ornith. Monatsber., 45, 192-195,
2 text figs., Dec. 13, 1937.

From study of hand and wing bones in Archaeornis,
Stegemann concludes that wing at rest could
not have folded with hand turned back but must
have taken more lacertilian position, with palm
directed more or less anteriorly.



TIBIOTARSUS & Fibula

00000000000000000000000000000000

asdefg

eeeeegggggggggggg eg

asdfghjkl
zxcvbnmwer tyui o

yyyyyoooooooo ●

XXXXX

uuuqqqqqqqqqqqqqqqqqq



Fig 6
Lucas

Piez USA Nat Mus
Vol. 26 p 554

Rt. coracoid

Left scap (frag) of

Baptornis advenus

Nat. size

U.S. Nat Mus spec.

Applanoid rostrum of Hesperornis
granilis ^{belonging to K.U.} ~~at U.S. Nat. Mus.~~ preserved. The portion
of its anterior end, underlying & within
with the mesothorax is "preserved as
it does in Univator." Lucas p. 547
Does not say this is very unlike
Thamnodon